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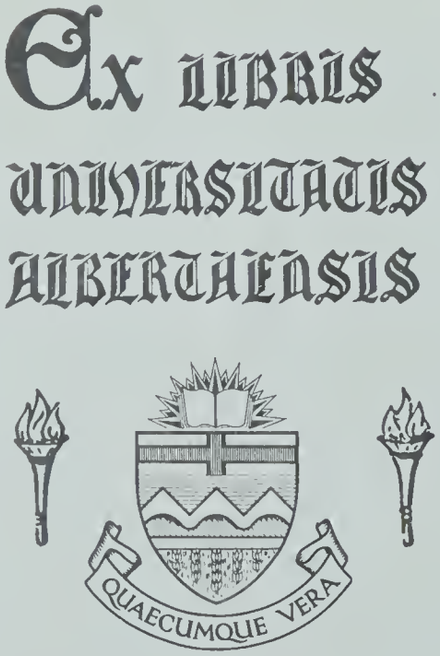

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THE UNIVERSITY OF ALBERTA

UKRAINIAN DIMINUTIVES IN -OK

by

© PATRICIA E. LYNKOWSKY

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Ukrainian Diminutives in -OK" submitted by Patricia E. Lynkowsky in partial fulfilment of the requirements for the degree of Master of Arts.

An Abstract of

UKRAINIAN DIMINUTIVES IN OK

Suffixation, as a derivational device, plays a predominant role in the process of word-formation in most Slavic languages. Generally speaking, the suffixes which participate in the derivation of substantives from nominal stems may be one of two types. Some suffixes, when added to a given noun stem, are capable of creating a new independent noun form whose meaning and gender may differ from that of the original form; cf. heroj 'hero' (masc.) and herojstvo 'heroism' (neut.). Other suffixes, however, may be utilized to derive forms which merely modify the meaning of the base noun, often imparting a sense of diminution or augumentation, in addition to carrying a concomitant meaning of affection, endearment or depreciation, and it is these particular suffixes which are the focus of our attention. However, rather than attempt to present an exhaustive study of diminutive formation in Ukrainian, the study at hand limits the scope of the problem and primarily concerns itself with accounting for the various manifestations of the particular suffix -OK. More specifically, we attempt to categorize the distribution of the various forms of this particular suffix and investigate the possibility of predicting their occurrence within the framework of generative phonology.

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CHAPTER I

INTRODUCTION

The primary objective of this thesis is to present several alternative systematic accounts of diminutive formation in Modern Literary Ukrainian (henceforth referred to as MLU) with the intent of focusing attention on some of the problems arising in connection with the derivation of diminutive substantives which utilize the various forms of the -OK suffix -- problems which would have to be dealt with in a formal characterization of the sound system of MLU, and which, to our knowledge, have not been explicitly solved to date. This study purports to analyze the diminutive substantives within the system of the literary standard language, with the bulk of the data taken from Holoskevyč and Pohribnyj, whose works are considered the most authoritative sources on the pronunciation of contemporary Ukrainian. A limited amount of supplementary information was elicited from educated Ukrainian speakers, who supplied some of the diminutive forms which were not recorded in the standard dictionaries.

The method employed involves a contrast of six solutions which we have grouped into two main types -- the Distributional and the Abstract analyses. The first of the distributional analyses is the Taxonomic Analysis, which is essentially an attempt to account for the facts in a manner which would presumably have been adopted by those structuralists who, according to Stankiewicz (1968), saw their goal in the identification of minimal units and their distribution. This particular solution

might also be referred to as the most concrete analysis in the sense that the lexical representations which are proposed are the least removed from the phonetic realizations of the particular morphemes involved; they are ideally identical to a particular allomorph of that morpheme and are therefore minimally abstract. We may note the following relevant remarks of Benjamin (1965) on this topic:

> When we say, therefore, that a descriptive science represents the reality of observed facts directly, we mean only that it is the most direct representation possible in view of the nature of the knowing process. We can find no manner of getting "closer" to the facts than to observe, manipulate, and gather reports about them, and to classify, associate, order, and measure them. (pp. 80-81)

To bridge the gap between our concrete and abstract analyses, we thought it appropriate to present a Jakobsonian solution of the diminutive substantives under study, in view of the fact that his work may be considered a link between the taxonomic approach to linguistic analysis and modern generative phonology. We have patterned our Jakobsonian Analysis after Jakobson's (1948) study on Russian verb conjugation, where he utilizes the notion of morphophonemic representation ("basic form") and outlines the procedure he follows in arriving at them. In contrast to our concrete solution, the base forms in our Jakobsonian Analysis are, to a certain degree, more abstract than those of the previous solution, but are in all instances relatable to the phonetic realizations by means of a reasonably explicit set of rules of induction.

In contradistinction to the distributional analyses,

we have four solutions which are presented within the framework of generative phonology and which are grouped together under the heading Abstract Analyses (Chapter IV), where the abstract entities posited as the basic lexical representations are related to the phonetic level of representation only by a quite diverse and complex set of deductive rules which, for the most part, are based on Lightner's (1965) and Foster's (1966) analyses of the segmental phonologies of Russian and Ukrainian, respectively. These rules will be introduced systematically beginning in Chapter III, along with the underlying consonantal and vocalic systems which will be utilized in the present study. Chapter IV, then, consists of what we feel to be the possible solutions of the particular diminutive substantives in question within the framework of contemporary phonological theory as originally proposed by Chomsky, and as developed in particular, in Postal (1968) and Chomsky and Halle (1968). In conclusion, we will summarize and evaluate the solutions in the light of both synchronic and diachronic evidence.

CHAPTER II

THE DISTRIBUTIONAL ANALYSES

Analysis I: The Taxonomic Analysis

Before 1956, one of the few approaches available to the linguist was what Chomsky (1964:91) has called the "taxonomic phonemic" method, which was essentially one of segmentation and classification of allomorphs, based on the principles of contrast and complementary distribution. Stankiewicz (1968:10), in reference to substantive formations in Contemporary Russian, sharply criticizes the resulting "item and arrangement" model on the grounds that it is inadequate for an explanatory description of declension and expressive gradation in a number of respects, among them the consideration that such an analysis tends to over-emphasize the role of morphemes at the expense of other formal processes of language, and that instead of formulating general predictive rules which would account for the occurrence as well as the non-occurrence cf forms and grammatical processes, it concerns itself mainly with enumerating the items. Chomsky (p. 91), too, claims that the "main methodological and substantive assumptions that have played a crucial role in taxonomic phonemics are invalid," but he acknowledges the fact that its development led to a new degree of explicitness and precision, and provided new insights into sound structure, and for these very reasons is worthy of careful and critical scrutiny. We find it fitting, therefore, to begin our study of diminutive suffixes in MLU with a taxonomic analysis.

In classical form, taxonomic phonemics focuses on abstracting from the data of pronunciation a phonemic level of representation from which certain predictable phonetic features are excluded, and on examining the grammar (morphology and syntax) in terms of elements from this level. In a morphologic description, an attempt is made to identify morphemic units and to formulate distributional statements which describe the environments where the variants of each of these units predictably occur. We shall now examine some of the forms presented in the Appendix and attempt to formulate a statement which will predict the distribution of the alloforms of the diminutive suffix morpheme. Consider the following forms (given here in phonemic notation):

Group 1	/mlyn/	'mill'
	/mlynok/	'little mill' (g.sing. /mlynka/)
Group 2	/sad/	'orchard'
	/sadok/	'small orchard' (g.sing. /sadka/)
	/sadočok/	'small orchard' (g.sing. /sadočka/)
Group 3	/r'ika/	'river'
	/r'ička/	'stream'
	/r'ičečka/	'little stream' (g.pl./r'ičečok/)
Group 4	/misto/	'city, town'
	/mistečko/	'little town' (g.pl. /mistečok/)
Group 5	/don'a/	'daughter'
	/don'ka/	'small daughter' (g.pl./don'ok/)
	/donečka/	'small daughter' (g.pl./donečok/)
Group 6	/den'/	'day'
	/den'ok/	'fine day' (g.sing. /den'ka/)
	/den'očok/	'fine day' (g.sing. /den'očka/)

From the preceding examples we see that the diminutive suffix has four allomorphs, i.e., /-ok~-k~-eč~-oč/, whose

distribution may be summarized as follows:

1) /-ok/ occurs before a zero ending, e.g., /mlynok/

2) /-k/ occurs before a vocalic desinence, e.g., /mlynka/

3) /-eč/ occurs in compound diminutives
   a) after a palatal obstruent, e.g., /ričečka/

   b) after neuter stems, e.g., /kryločko/

   c) after a soft fem. stem, e.g., /donečka/

4) /-oč/ occurs in compound diminutives
   a) after a masc. stem, e.g., /sadočok/
      /den'očok/

   b) after a hard fem. stem ending in a labial or dental, e.g., /hiročok/

It is clear that the first three statements above illustrate phonological conditioning, and the remainder, morphological conditioning. However, there appears to be some confusion as to which conditioning factor predominates in the derivation of the compound diminutive of /kraj/ 'country, land', for according to the distributional statement just formulated, the compound diminutive of this morpheme should be */krajočok/ (cf. /haj/ and /hajočok/); and yet, the accepted diminutive in this particular case is /kraječok/, which seems to indicate that an element of uncertainty is introduced due to the fact that the root is masculine (see statement 4a above) and also ends in a palatal consonant (see statement 3a above), with the result that the compound diminutive form of this morpheme is an exception to our lexical rule above.

Strictly speaking, however, taxonomic phonemics does not recognize the concept of rule *per se*, but concerns itself mainly

with listing the various shapes of a given morpheme along with environmental descriptions of their occurrence, which is precisely the type of analysis we presented on p. 6 . However, Bloomfield (1933:212-213) suggests that the selection of a theoretical underlying form or basic alternant may often facilitate and simplify the description of the facts. In forms such as knife vs. knives, where the constituent form differs phonetically from the underlying form, Bloomfield states that ". . . . first, f in knife is replaced by v; then, the appropriate plural alternant is added." It would seem that implicit in this description is the claim that the formation of the plural form (knives) involves two separate changes or processes. However, Bloomfield explains that

> the terms "before, after, first, then," and so on in such statements tell the descriptive order. The actual sequence of constituents, and their structural order are part of the language, but the descriptive order of grammatical features is a fiction and results simply from our method of describing the forms; it goes without saying, for instance, that the speaker who says knives, does not "first" replace f by v and "then" add [-z], but merely utters a form (knives) which in certain features resembles and in certain features differs from a certain other form (namely, knife). (p. 213)

Although Bloomfield thus denies that two processes are involved in the formation of knives, the idea underlying his notion of descriptive order is comparable to the present-day concept of order in phonological rules. As we read in Postal (1968):

> phonological rule ordering is not a completely new idea. Rather it is a necessary aspect of linguistic descriptions which modern taxonomic linguistics, especially autonomous phonemics, has forgotten, overlooked, and/or obscured. Rule ordering was, for example, an explicit feature of Bloomfield's phonological practice (1939a) and is implicit

> in many of Sapir's phonological discussions (1933) . . . . The reintroduction of ordered rules into phonological and morphophonemic description, which was initiated by Chomsky (1951) as long ago as the beginning of the 1950's is thus by no means a radical departure when seen in the larger context of the whole development of linguistics. It is the intermediate period of some quarter century, from the early 1930's to the 1950's, which stands out as a deviation from the general history. (pp. 140-141)

Roman Jakobson (1948), in his synchronic analysis of the conjugation pattern in Standard Russian utilizes (without apology) both the notion of basic form and the notion of rule, although he states his rules in prose and does not impose any explicit ordering relationships. However, rules involving such statements as "before the dropped nasal" (p. 160) do, in fact, involve the recognition of an implicit ordering in his rules. In contrast to Bloomfield, however, whose primary criterion in the selection of a base alternant was simplicity of description (p. 212), Jakobson arrives at his base forms by adhering to a reasonably explicit discovery procedure. First, much like the structuralist, he phonemicizes the various forms of a given morpheme, deriving from the phonetic transcription of each a phonemic representation. Then, in principle, he selects a particular alloform as the underlying representation; that is, if certain phonemic constituents appear in different alternants, he takes as basic the alternant which appears in a position where the other alternant too would be admissable (p. 156). He then posits rules which convert these base forms into their phonemic representations and, eventually, into the correct phonetic output. Although Jakobson's treatment is confined to purely verbal categories (in

fact, to verbal stems alone), we shall extrapolate to affixes in order to differentiate a unique "Jakobsonian" analysis of the diminutive suffix from the earlier taxonomic one. Adopting this methodology, then, we shall attempt to set up a morphophonemic representation for the diminutive suffix morpheme; then, we will propose some rules which will convert our base forms into their correct output.

Analysis II: The Jakobsonian Analysis

We found that the diminutive suffix morpheme has the allomorphs /-ok~-k~-eč~-oč/, and in selecting an underlying representation we are confronted with a number of possibilities. A reasonable first attempt would be to posit the base form ⟨-k⟩ [1], omitting the vowel on the assumption that it is inserted by rule in order to avoid inadmissable consonant clusters in word-final position as, for example, in /pisok/ 'sand' and /vizok/ 'little wagon'. However, this argument is considerably weakened by the existence of such forms as /visk/ 'wax' and /brjazk/ 'rattle', where clusters identical to the ones which would presumably be excluded by such a rule do, in fact, occur in word final position. This suggests that in forms such as /valka~valok/, where a vowel appears under certain conditions, we might better posit a base form containing some vocalic element which deletes when followed by a vowel, but which remains when followed by a zero ending. If

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[1] ⟨ ⟩ denotes morphophonemic representations.

we were to posit <-ok> as the morphophonemic representation for the diminutive suffix, however, and have the o delete in the environment before CV, we would have to differentiate between two different types of o's, namely, between those o's which delete in this environment (i.e. /___CV) and those which do not, for although the o in /mlynok/ deletes before a vocalic desinence as in /mlynka/, for instance, a form such as /voda/ is not subject to the same process, for all forms of this particular noun retain the o (cf. /vody/ g.sing. 'water'). This evidence seems to suggest that the two o's involved are of different origins. By the same token we would have to posit two types of e's in order to differentiate between those which delete (e.g. /tem/ and /t'ma/) and those which do not (e.g. /pero/ and /per/). Henceforth, we shall refer to the o and e which delete as the mobile vowels.

We shall now list various forms containing these mobile vowels and attempt to show that there appears to be a pattern in the distribution of e as opposed to o, namely that the mobile vowel is realized as o in the environments, a) before word-final k and b) after velar consonants, while elsewhere, it is realized as e.

Consider the following examples:

a)	/bulok/	/bulka/	
	/sadok/	/sadka/	(cf. /sad/)
	/mlynok/	/mlynka/	(cf. /mlyn/)
	/knyžok/	/knyžka/	(cf. /knyha/)
b)	/vohon'/	/vohn'u/	'fire'
	/bahon/	/bahna/	'swamp'
	/vikon/	/vikna/	'window'
	/cerkov/	/cerkva/	'church
	/vyxor/	/vyxru/	'whirlwind'

c)	/sester/	/sestra/	'sister'
	/vider/	/vidro/	'pail'
	/zemel'/	/zeml'a/	'land'
	/n'imec'/	/n'imc'a/	'a German male'
	/palec'/	/pal'c'a/	'finger'
	/pysem/	/pys'mo/	'writing'
	/mitel/	/mitla/	'broom'
	/tem/	/t'ma/	'darkness'
	/pen'/	/pn'a/	'stump'
	/pes/	/psa/	'dog'
	/pisen'/	/pis'n'a/	'song'

We find that since we are able to predict the occurrence of e as opposed to o in the forms given above, we might consider positing a basic vowel which is unspecified for gravity and then predicting this feature by rule, thereby enabling us to account for the distribution of both vowels by a single rule. We shall indicate such an incompletely specified vowel by means of an asterisk. Therefore, the base form for the diminutive suffix which we propose is ⟨*k⟩ and our tentative vowel prediction rule is as follows:

$$(2\text{-}1)\ (a)\ (b_1)\ (b_2)\ (c)\quad * \rightarrow \left\{ \begin{array}{l} \emptyset\ /\ \underline{\quad}\ CV \\ o\ /\ \left\{ \begin{array}{l} +\ \_\ k\#\# \\ K\ \underline{\quad}\ \text{(where K stands for velars)} \end{array} \right\} \\ e\ /\ \text{Elsewhere} \end{array} \right\}$$

We must, however, restrict the application of sub-rule (2-1 b_2) above to root internal positions, for otherwise the rule would insert o after ruk + _ in ⟨ruk+*k+*k+∅⟩, for example, eventually yielding */ručočok/ instead of /ručečok/. This adjustment will enable us to account for the o-insert in /vikon/ (from ⟨vik*n+∅⟩), for instance, as opposed to the e-insert in /ručečok/.

In addition, we must also prevent sub-rule (2-1 a) from

applying in an environment where V=*, for otherwise it would delete all of the mobile vowels from the base form of /viderečko/ (from <vid*r+*k+*k+o>); by adding such a restriction, however, we are able to retain the mobile vowels in the necessary places in this and other such forms.

We still have to account for the allomorph /-oč/, whose distribution is given on p. 6 . If we compare the forms /budočok/, /synočok/ and /kisočok/ with /mistečok/, /viderečok/ and /kr'seleč ok/, we notice that although all these roots end in hard dental consonants, some are followed by /-oč/, and others by /-eč/, which indicates that the alternation is not phonologically determined. We are able to support this conclusion on the basis of the minimal pair /mistečok/ (a g. pl. diminutive form of /misto/ 'city') and /mistočok/ (from /mist/ 'bridge'). Therefore, we seem to have grounds for extending our vowel prediction sub-rule (2-1 b) to predict o in the following two additional environments:

$$(2\text{-}1)\ (b_3),\ (b_4) \quad * \rightarrow \quad \underline{o} \ / \left\{ \begin{array}{l} \text{Masc. Root} + \_ \\ \qquad\qquad -K \\ \text{Fem. Hard Root} + \_ \\ \qquad\qquad -K \end{array} \right\}$$

Our final formulation of the proposed vowel prediction rule, therefore, is as follows:

$$(2\text{-}1)\ (a),\ (b_1),\ (b_2),\ (b_3),\ (b_4),\ (c) \quad * \rightarrow \left\{ \begin{array}{l} \emptyset \ / \ \_\_ \ \text{CV (where V}\neq *) \\ \underline{o} \ / \left\{ \begin{array}{l} + \_ \ k\#\# \\ K \_ \ \text{(root internally)} \\ \text{Masc. Root} + \_ \\ \qquad\qquad -K \\ \text{Fem. Hard Root} + \_ \\ \qquad\qquad -K \end{array} \right. \\ \underline{e} \ / \ \text{Elsewhere} \end{array} \right\}$$

(Where -K indicates that the roots involved do not end in a velar.)

Upon examining the forms listed under Group 3 we might conclude that velars alternate with the corresponding palatals before the diminutive suffix, for although phonemically both /rukoju/ in. sg. and /ručok/ g. pl. contain the vowel o, the base forms are ⟨ruk+oju⟩ and ⟨ruk+*k+Ø⟩ respectively, and we find that the palatal appears only before the diminutive suffix. We might even consider positing a rule which shifts velars to the corresponding palatals before the mobile vowel *, but this formulation would not work for /vikon/ (from ⟨vik*n+Ø⟩). It would thus appear that it is the diminutive suffix in particular which triggers the velar/palatal alternation. We might express this as follows (where Č designates the palatal consonants which correspond to the set of underlying velars):

$$(2\text{-}2) \qquad K \rightarrow \check{C} \; / \; \_\_ + \begin{matrix} \text{Dim} \\ \text{Suff} \end{matrix}$$

Further, we find that o and e alternate with i before this suffix and also in the environment before (C)C##, but because this alternation is not typical of all o's and e's (e.g. vod, per, mov, rot, mox, xrest), we will have to distinguish yet another type of o and e -- the type which alternates with i -- which we shall refer to as o_1 and e_1. The rule which accounts for this alternation is:

$$(2\text{-}3) \qquad (o_1, e_1) \rightarrow i \; / \; \_\_ \left\{ \begin{matrix} +\text{Dim} + \\ \text{Suff} \\ (C)C\#\# \end{matrix} \right\}$$

We have, therefore, three types of phonemic o's and e's, that is:

1) o which remains o (/voda, vod/)
2) o which alternates with Ø (/ručok, ručka/)
3) o_1 which alternates with i (/kon'a, kin'/)

We also seem to require a rule which palatalizes consonants before i as in /n'ih/ (cf. /noha/), /d'im/ (cf. /domu/) 'house, home'. According to some sources (Stechishin, 1966:44), however, consonants are never softened before the i which is derived from o as in /niž/ (cf. /nože/) 'knife', whereas the i which is derived from e (as in /selo/~/s'il/ 'village') always softens a preceding consonant. In fact, we are able to find minimal pairs which appear to support such a claim, for example, /nis/ 'nose' (cf. /nosa/) and /n'is/ 'he was carrying' (cf. /nesty/ 'to carry'). However, there is an overriding tendency in the Standard language to palatalize consonants before i of any origin, and by ordering our palatalization rule after the rule which shifts o and e to i we are able to reflect this pronunciation. Clearly, one would expect that by reversing the order of the (o,e:i) and palatalization rules, we should be able to account for the type of pronunciation which retains the distinction between /nis/ and /n'is/. However, if we do attempt to order the palatalization rule before the (o,e:i) rule, we are unable to account for the soft n in /n'is/, for at the stage when the palatalization rule would apply, n would be followed by e, whereas the rule under consideration would palatalize consonants only before i. It thus appears that we have grounds for positing a more general rule whereby

consonants become palatalized before both i and e. Our proposed rule is as follows:

(2-4) $C \longrightarrow [+\text{sharp}] \; / \; \_\_ \begin{bmatrix} V \\ -\text{grv} \end{bmatrix}$

Furthermore, the forms in Group 5 on p. 5 clearly indicate that consonants become depalatalized before e (cf. /don'a/ and /donečka/). Such a depalatalization rule would serve to explain how the n in /nesty/ 'to carry' might appear hard phonetically despite the presence of a rule such as (2-4) in the grammar which palatalizes consonants before all front vowels. We are able to supply additional motivation for such a depalatalization rule, and the facts clearly indicate that such a rule is undoubtedly necessary in a grammar of Ukrainian. Observe the following forms:

pole 'field'	more 'sea'	blyz'ko 'near'
polem (instr.)	morem (instr.)	blyzen'ko 'near'
pol'a (nom. pl.)	mor'a (nom. pl.)	t'ma 'darkness'
		tem (g. pl.)

The suggested rule is:

(2-5) $C \longrightarrow [-\text{sharp}] \; / \; \_\_ \; e$

We are now able to correctly derive /nesty/as opposed to /n'is/. Compare the following derivations:

Standard Pronunciation

	/n'is/ 'nose'	/n'is/ and /nesty/ 'carry'	
	no$_1$s+Ø	ne$_1$s+l+Ø	ne$_1$s+ty
(2-3)	nis+Ø	nis+l+Ø	
(2-4)	n'is	n'is[3]	n'es+ty
(2-5)			nes+ty

[3]The l represents the past tense morpheme which deletes under certain conditions.

The "Older" Pronunciation

	/nis/ 'nose'	/n'is/ and	/nesty/ 'carry'
	no$_1$s+Ø	ne$_1$s+l+Ø	ne$_1$s+ty
(2-4)	———	n'es+l+Ø	n'es+ty
(2-3)	nis	n'is[3]	———
(2-5)	———	———	nes+ty

In view of the fact that we are primarily concerned with the derivation of Standard forms, we do not, in fact, require the palatalization rule to apply before e, since the Standard language does not distinguish between /n'is/ 'nose' and /n'is/ 'he was carrying'; however, since we have been able to supply motivation for a depalatalization rule on independent grounds, we shall retain the more general formulation of the palatalization rule (2-4), despite the fact that it may now appear redundant to palatalize consonants before e, and then to depalatalize them in the same environment.

We also find that dentals assimilate to a following dental with respect to palatalization, and we are able to find evidence of this in such forms as /den'/ and /d'n'a/, /palec'/ and /pal'c'a/, /pisen'/ and /pis'n'a/. The rule which accounts for these alternations is as follows:

$$(2\text{-}6) \qquad D \rightarrow \begin{bmatrix} + \text{ sharp} \end{bmatrix} / \_\_ \begin{pmatrix} D \\ + \text{ sharp} \end{pmatrix} \quad (\text{where } D = \text{any dental consonant})$$

Summary of the Rules for Analysis II

The following is a list of the rules in the relative order of their application.

(2-1) (a) (b$_1$) (b$_2$) (b$_3$) (b$_4$) (c) * →

- Ø / __ CV (where V≠*)
- o / + _ k##
- o / K _ (root internally)
- o / Masc. Root + _ -K
- o / Fem. Hard Root + _ -K
- e / Elsewhere

(2-2) K → Ø / __ + Dim + Suff

(2-3) (o$_1$,e$_1$) → i / __ { + Dim + Suff ; (C)C## }

(2-4) C → [+ sharp] / __ [V -grv]

(2-5) C → [- sharp] / __ e

(2-6) D → [+ sharp] / __ [D + sharp]

Sample Derivations for Analysis II

Gr. 1

	sadok	riž̌ok
	sad+*k+Ø	ro$_1$h+*k+Ø
(2-1)	sad+ok##	ro$_1$h+ok##
(2-2)	_____	ro$_1$ž̌+ok##
(2-3)	_____	riž̌+ok
(2-4)	_____	r'iž̌+ok

Gr. 2

	babočka
	bab+*k+*k+a
(2-1)	bab+ok+k+a
(2-2)	bab+oč̌+k+a
(2-3)	_____
(2-4)	_____

Gr. 3

	ručečok
	ruk+*k+*k+Ø
(2-1)	ruk+ek+ok##
(2-2)	ruč̌+eč̌+ok##
(2-3)	_____
(2-4)	ruč̌$^{\text{H}}$+eč̌+ok##
(2-5)	ruč̌+eč̌+ok##

Gr. 4

	misteč̌ok
	mist+*k+*k+Ø
(2-1)	mist+ek+ok##
(2-2)	mist+eč̌+ok
(2-3)	_____
(2-4)	m'ist$^{\text{H}}$+eč̌+ok
(2-5)	m'ist+eč̌+ok##

Gr. 5

	donečok
	don'+*k+*k+Ø
(2-1)	don'+ek+ok##
(2-2)	don'+eč̌+ok##
(2-3)	_____
(2-4)	_____
(2-5)	don+eč̌+ok##

Gr. 6

	den'očok
	d*n'+*k+*k+Ø
(2-1)	den'+ok+ok##
(2-2)	den'+oč̌+ok##
(2-3)	_____
(2-4)	d'en'+oč+ok##
(2-5)	den'+oč̌+ok##

Conclusion

Although we are able to derive all the diminutive forms listed in the Appendix by utilizing the rules on p. 17 , it is obvious that the vowel prediction rule (2-1) is extraordinarily complicated. One possible approach to reanalysis would be to attempt to specify the environment for e instead of o; but if we study the forms listed under (c) on p. 11 , we find that it appears impossible to formulate any sort of general environmental statement about the occurrence of e in these forms. We were able to predict the occurrence of e when it belongs to the diminutive suffix, however (see p. 6). Thus, the indications are that the mobile vowel behaves differently within a diminutive suffix than it does when it is part of a root. In fact, this observation provides added motivation for treating stems such as vik*n- as roots, despite the fact that historically vik*n, for instance, consisted of the root ok (cf. oko 'eye') and the derivational suffix ŭn (which traces back to the Proto Slavic *ъH). If, in a synchronic analysis, we are to proceed on the assumption that such stems still consist of a root plus a suffix, we discover that we encounter many difficulties, such as the fact that the mobile vowel is realized as o in /vikon/ (presumably from ‹ok+*n+Ø›) and as e in /ručečok/ (from ‹ruk+*k+*k+Ø›), even though this vowel in both instances follows a velar plus a morpheme boundary. In any event it is clear that we have been unable to account for all occurrences of the mobile vowel by any single phonological rule within the Jakobsonian framework.

CHAPTER III

A CORE OF GENERATIVE RULES

Introduction

In outlining the plan of this thesis in Chapter I, we explained that four of our solutions would be grouped together under the heading Abstract Analyses and would be developed from the point of view of generative phonology. We shall therefore devote this chapter to presenting a detailed description of the underlying phonological system and the rules to be utilized in these analyses. The presentation of this chapter draws very heavily on both Lightner (1965) and Foster (1966). In the majority of cases we will present Foster's formulations of the rules, but because our treatment of the vocalic system differs in detail from that adopted by him, some rules will differ somewhat from his in their formal characterization. Also, in view of the fact that both Lightner and Foster took into consideration a much larger range of data in positing their rules, many of the details which they present are not applicable to the study at hand, which is essentially to account for the data presented in the Appendix, namely, the diminutive substantives. Although we have thus found it expedient to modify some of Lightner's or Foster's rules, we should also hasten to emphasize that our modifications do not in any way distort or obscure the basic claims of the rules in question, but simply enable us to focus our attention on problems specifically associated with the -OK morpheme. To further simplify the issue, we have decided against introducing the transformational

cycle, in view of the fact that we are dealing solely with the derivation of diminutive substantives and that the results achieved by having our rules apply at the word level are identical to those achieved through a cyclical application of the rules. We shall also outline Foster's analysis of the (e,o:i) alternation in MLU and then present a reformulation of our own which attempts to show that by making the feature tenseness distinctive for the underlying vocalic system of Ukrainian (rather than flatness as in Foster's analysis), we are able not only to account for a greater range of facts, but also to reflect what Shevelov claims to have been the actual diachronic development of this particular phenomenon.

The Underlying Vocalic System

We have patterned our treatment of the Ukrainian vocalic system after Lightner's analysis of the Russian vowels, and have posited a distinctive opposition of +T vs. -T in the basic vowel system, where T represents an abstract feature of tenseness which is neutralized at the phonetic level (see Lightner:26). Our inventory of underlying vocalic segments therefore consists of the following eight vowels:

i	ɪ	u	ʊ[1]
e	ɛ	o	ɔ

[1]The superscript ˘ denotes a lax vowel (i.e. [-T]). All vowels which do not have this superscript are to be interpreted as [+T].

To differentiate these eight basic segments, Lightner utilizes the three features tenseness, diffuseness, and gravity:

	i	ĭ	u	ŭ	e	ĕ	o	ŏ
tense	+	-	+	-	+	-	+	-
diffuse	+	+	+	+	-	-	-	-
grave	-	-	+	+	-	-	+	+

All eight vowels are now distinct, but as yet, they are unspecified for compactness and flatness; specifications for these two features can be predicted from the distinctive features mentioned above by redundancy rules. The first of these states that the marking for compactness is opposite the specification for diffuseness, that is:

(Red.1) $\left[\alpha \text{ diff}\right] \rightarrow \left[-\alpha \text{ comp}\right]$

The application of (Red. 1) fills out the matrix as follows:

	i	ĭ	u	ŭ	e	ĕ	o	ŏ
tense	+	-	+	-	+	-	+	-
diffuse	+	+	+	+	-	-	-	-
grave	-	-	+	+	-	-	+	+
compact	(-)	(-)	(-)	(-)	(+)	(+)	(+)	(+) [2]

[2]The parentheses denote redundant feature specifications.

The segments are still unspecified for flatness, but we find that all [-grave] vowels are predictably non-flat, that is:

$$\text{(Red. 2)} \quad \begin{bmatrix} V \\ -grv \end{bmatrix} \rightarrow \begin{bmatrix} -flat \end{bmatrix} \quad \left(\text{where } V = \begin{bmatrix} -cons \\ +voc \end{bmatrix}\right)$$

The above redundancy rule predicts flatness for all non-grave segments, but the vowels marked $\begin{bmatrix} +grv \end{bmatrix}$ remain unspecified for flatness. These vowels take on the opposite marking for flatness as the specification for tenseness, that is:

$$\text{(Red. 3)} \quad \begin{bmatrix} V \\ +grv \\ \alpha T \end{bmatrix} \rightarrow \begin{bmatrix} -\alpha\ flat \end{bmatrix}$$

Our fully specified vowel matrix for the five features under discussion is then as follows:

	i	ĭ	u	ŭ	e	ĕ	o	ŏ
tense	+	-	+	-	+	-	+	-
diffuse	+	+	+	+	-	-	-	-
grave	-	-	+	+	-	-	+	+
compact	(-)	(-)	(-)	(-)	(+)	(+)	(+)	(+)
flat	(-)	(-)	(-)	(+)	(-)	(-)	(-)	(+)

In Chapter II we noted that phonetic o and e may alternate with Ø, that is as in pes ~ psa, den' ~ dn'a, valok ~ valka, etc., and we briefly considered the possibility of positing such base forms as val+k+Ø , holov+k+Ø , etc. for valok and holivok respectively, omitting the vowels on the assumption that they are inserted by rule; however, we found examples which seemed to refute such an analysis (see p. 9). In this chapter, we shall adopt Lightner's analysis and posit the two diffuse lax vowels ĭ and ŭ (the counterparts of the jers) which

"drop out under certain conditions, and lower to (e, o) under other conditions" (p. 26), thereby providing one source of phonetic e and o. The rule which Lightner posits to account for this phenomenon in Russian is:[3]

$$\begin{matrix}\text{(lower)}\\ \\ \text{(del.)}\end{matrix} \quad \begin{pmatrix} V \\ +\text{diff} \\ -T \end{pmatrix} \rightarrow \left\{ \begin{matrix} [-\text{diff}] \; / \; \_\_ \; C_1 \left\{ \begin{matrix} \breve{u} \\ \breve{i} \end{matrix} \right\} \\ \\ \emptyset \end{matrix} \right\}$$

The lax diffuse segments are thus presumed to be the vowels which underlie the e and o which participate in the alternations e:Ø; o:Ø . Also, we find that in some forms, velars alternate with strident palatals before phonetic y as in batožylno (cf. batih 'whip'); in others, this alternation does not occur (e.g. kydaty 'to throw'), which appears to suggest that phonetic y as two sources -- a front vowel and a back vowel. Just as it has been proposed that the lax vowels ĭ and ŭ are the vowels which underlie the e and o which alternate with Ø, it is reasonable to suggest that it is the tense counterparts of these vowels (i.e. i and u)

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[3]This formulation is actually a modification of Lightner's rule, for Lightner made his rules apply cyclically, and restricted the application of the (del.) subrule to the word level. However, in view of the fact that we have dispensed with the cycle, we are able to eliminate the environmental specification ___X## and simply state that those lax diffuse vowels which have not lowered simply delete. We have also eliminated a further subrule which predictably lowers all lax diffuse vowels which are stressed.

which are the two sources of y, and that these vowels coalesce as a consequence of some rule such as the following:

$$\text{(coal.)} \quad \begin{bmatrix} V \\ +T \\ +diff \end{bmatrix} \rightarrow \begin{bmatrix} -diff \\ -grv \end{bmatrix}$$

The underlying e which we have posited in our basic inventory corresponds to the Proto-Slavic jat' and becomes i phonetically as in forms such as misto (cf. Russian mesto) 'city, town'. The rule which takes basic e to i, we find, must follow the rule which coalesces u and i (see above), for otherwise the i derived from e would also merge with u, resulting in a phonological system in which phonetic i would appear only as a participant in the (e,o:i) alternation as in such forms as noha ~ nih 'foot', voza ~ viz 'wagon', stola ~ stil 'table', etc. We have, however, such forms as rika ~ rik 'river', where i does not alternate with either o, e, or ∅, and this i (derived from e) should not be confused with the i in nih (cf. noha), for example. The proposed rule which takes e to i is:

$$\text{(e:i)} \quad \begin{bmatrix} V \\ +T \\ -grv \\ +comp \end{bmatrix} \rightarrow \begin{bmatrix} +diff \\ -comp \end{bmatrix}$$

Compare the following forms:

misto (nom.)	mist (g. pl.)	'city'	(from m̲e̲st+. . . .)
rika	rik (g. pl.)	'river'	(from r̲e̲k+. . . .)
bida	bid (g. pl.)	'misfortune'	(from b̲e̲d+. . . .)
pič (nom.)	peči (g. sing.)	'oven'	(from p̲ĕ̲k+. . . .)
rič "	reči (g. sing.)	'object'	(from r̲ĕ̲k+. . . .)
But: rik "	roku (g. sing.)	'year'	(from r̲ŏ̲k+. . . .)
bik "	boku (g. sing.)	'side'	(from b̲ŏ̲k+. . . .)

If we examine the above examples, it appears that we must posit lax e̲ and o̲ as the underlying segments which participate in the (e̲,o̲:i̲) alternation, for tense e̲ invariably goes to i̲ and would incorrectly give us *pič̲i̲, *ri̲č̲i̲, etc., instead of pe̲č̲i̲, re̲č̲i̲, etc. Tense o̲, on the other hand, is posited as the source of phonetic a̲. We shall now proceed to describe the environments where the (e̲,o̲:i̲) alternation predictably occurs.

Most grammarians treat this alternation as a consequence of compensatory lengthening which occurs in a closed syllable and which affects only those vowels which were originally of the long variety, and must therefore have occurred during the period when length was distinctive. Diachronic studies of this change indicate that the lax vowels (jers) which occurred in weak position reduced and deleted, causing a quantitative and qualitative change of the historically long o̲ and e̲ of the preceding syllable, and, in the course of this change, stages of diphthongs were involved (Medvedjev: 81-88). Shevelov (1959:319-322; 1964:447), on the other hand, has made the claim that the Ukrainian development of e,o > i was a consequence of narrowing of the vowels and not of their lengthening, and that this process (traditionally referred to as

ikannja), was essentially one of assimilation in which the vowels e and o assimilated to a jer (lax diffuse vowel) of a following syllable. According to him, the loss of reduced jers, dialectally, produced compensatory lengthening of the vowel in the preceding syllables of di- and polysyllabic words, but this lengthening "spared all the eastern dialects of Slavic; hence there are no traces of it in Russian [or] Ukrainian . . . ." His specific claim is that

> in SW U [South Western Ukrainian] o, e, changed into u > ü > i in syllables after which a jer was lost, in the NU [Northern Ukrainian] into diphthongs (nus, nŭs; nu̯s; standard nis: nosa). Yet, this was not caused by compensatory lengthening as is often assumed, but by assimilation of e,o to ŭ,ĭ in the next syllable, an assimilation which resulted in narrowing (Kurylo). It was a change whose inception antedated not only the reduction of jers, but probably even their rise. (p. 447)

We are not attempting here to argue for or against any particular diachronic theory, but we find that if we do treat the (e,o:i) alternation as an assimilatory process in our synchronic analysis, not only are we able to account for the traditionally recognized regular reflexes of this phenomenon (i.e. those instances where the change occurs within a closed syllable), but also for many forms which are usually considered exceptional in that ikannja occurs within an open syllable.

Consider the following forms, for example:

bik	boku	(g. sing.)	'side'
brid	brodu	(g. sing.)	'ford'
bij	boju	(g. sing.)	'battle'
visk	vosku	(g. sing.)	'wax'
pič	peči	(g. sing.)	'stove, oven'
korin'	koren'a	(g. sing.)	'root'

To account for such forms as those listed above

where e and o shift to i in a closed syllable, Foster (p. 49) posits the following rule:

(o,e) → ē / __ C_1## (where ē is the source of phonetic i)

This shift also occurs before the diminutive suffixes -EC' and -OK, and it is these forms which constitute some of the traditionally recognized exceptions, for we find that ikannja occurs in these forms even in open syllables as, for example, in vizok~vizka (g. sing.) 'little wagon' (cf. voza); hrebinec' 'little comb' (cf. hreben'a 'comb' g. sing.); holivok~holivka (g. sing.) 'little head' (cf. holova). Foster for Ukrainian (like Lightner for Russian) posits the equivalents of our lax ĭ and ŭ as the vowels which underlie the e and o of these suffixes, i.e. the e and o which alternate with Ø (p. 50). These particular vowels are also posited as the underlying representations of the nom. sing. masc. and gen./neut. pl. endings (traditionally recognized as the zero endings); therefore we might set up the underlying representations of the forms given on the preceding page in the following manner:

bik	from	bŏk+ŭ
brid	from	brŏd+ŭ
bij	from	bŏj+ŭ
visk	from	vŏsk+ŭ
korin'	from	kŏrĕn'+ŭ
holivka	from	hŏlŏv+ŭk+a
vizok	from	vŏz+ŭk+ŭ
hrebinec'	from	hrĕbĕn+ĭc+ŭ

Given such underlying representations as these, we find that we can formulate a general rule which states that o and e shift to i whenever they occur before a syllable containing ĭ or ŭ,

that is:

$$(\underline{o},\underline{e}) \quad \rightarrow \quad \underline{i} \;/\; \_\_\; C_1 \left\{ \begin{matrix} \breve{\underline{i}} \\ \breve{\underline{u}} \end{matrix} \right\}$$

Foster's formal characterization of the rule is (p. 51):

$$\begin{bmatrix} +\text{voc} \\ -\text{cons} \\ +\text{flat} \\ +\text{comp} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{flat} \\ -\text{grv} \end{bmatrix} \;/\; \_\_\; C_1 \begin{bmatrix} +\text{voc} \\ +\text{flat} \\ +\text{diff} \end{bmatrix} \quad X\#\#$$

We mentioned earlier that by choosing to posit tenseness as a distinctive feature, we are able to mirror what in Shevelov's view is the historical process, and that is that the alternation is the result of an assimilatory process; Foster's formulation, on the other hand, treats the alternation as a process of dissimilation. Our formulation of the rule is therefore as follows:

$$(\underline{e},\underline{o}:\underline{i}) \begin{bmatrix} V \\ -T \\ +\text{comp} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{grv} \\ +\text{diff} \\ -\text{flat} \end{bmatrix} \;/\; \_\_\; C_1 \begin{bmatrix} V \\ -T \\ +\text{diff} \end{bmatrix}$$

If we were to adopt the convention employed by Lightner and Foster and intersperse redundancy rules with rules which change feature specifications, then we would be able to avoid mentioning the redundant feature of flatness in the above rule (and in all other such rules where the feature specification for gravity is changed) simply by ordering the redundancy rules after those rules which change gravity markings of vowels. However, for the sake of convenience, we shall assume that our redundancy rules as well as the (e:i) and (coal.) rules (p. 25) apply directly to our underlying segments and that our phonological rules thus apply to fully specified segments, thereby eliminating the need for the repeated application of these five rules in the derivations to be

presented in Chapter IV. Similarly, since the analyses developed in Chapter IV are not affected, for example, by the fact that phonetic y is a consequence of a merger of underlying i and u, we shall simply posit y in the base forms which we present there with the understanding that the coalescence rule has already applied to whichever of these two segments is basic in any given case. We shall therefore depart from the notation used by Foster for the specification of basic segments and introduce the following notational equivalents: underlying $\tilde{o}$ = a; $\bar{\bar{e}}$ = i; è = e; ò = o; $\breve{i}$ = ĭ; $\breve{u}$ = ŭ; ($\bar{i}$,$\bar{u}$) = y. As yet, we find that we have no source of phonetic u, for lax $\breve{u}$ either lowers and becomes o or deletes. However, Foster demonstrates that u can be derived from the underlying sequence on by a rule which shifts o to u before a nasal which is followed by another consonantal segment, and a second rule that deletes the nasal in this environment (p. 74).[4] It is this process, then, which accounts for phonetic u in the third person plural ending of verbs, for example, (nesut' 'they are carrying' from nes+on+t+...). In order to simplify our sample derivations, however, we will by-pass this process and simply posit u in our base forms directly, as in ruka from ruk+a (rather than from the more precise ronk+a).

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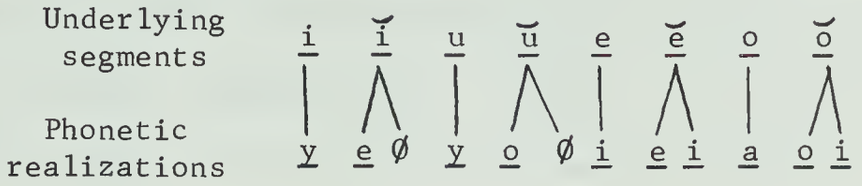
[4]There are other sources of u which Foster presents as well, but none of them pertain to any of the particular forms which we discuss.

Diagramatically, we might summarize our vocalic system in the following fashion:



We have, however, numerous instances where ŏ and ĕ do not alternate with i as in voda ~ vod, pero ~ per, mova ~ mov (cf. noha ~ nih, brova ~ briv, hora ~ hir). We have already mentioned that during the period when length was distinctive, it was the long variety of these vowels which underwent compensatory lengthening. But, because we are unable to distinguish between the reflexes of long and short o and e phonetically, we are compelled to somehow distinguish between those o's and e's which remain unchanged and those which alternate with i. Rather than setting up another ad hoc phonological feature (cf. the feature T) to distinguish these two types of mid vowels, Foster resorts to the use of a diacritic exception feature with which he marks those morphemes which contain mid vowels which do not undergo the (e,o:i) process. However, neither solution is completely satisfactory, for neither can account for the fact that the e in pero 'feather, pen', for example, does not shift to i in the g. pl. form per, and yet does do so in what is presumably the same morpheme in the derivative form pirja 'feathers'. Similarly, Foster treats the suffix men as in plemen 'tribes' as an exception to the (e,o:i) rule, yet we have the form pleminnyk 'nephew'. Indications such as these seem to refute Foster's implicit claim

that the absence of ikannja in certain instances is a characteristic of the morphemes involved. Šerex (p. 370) agrees that forms such as those given on the preceding page are the forms which defy descriptive categorization. However, we do find that ikannja predictably does not occur in the following instances (Foster; pp. 55 - 69) :

1) Unassimilated loan words are exceptions to this rule (e.g. traktor, futbol, etc.) and are marked with the diacritic feature [-S] .

2) Forms such as korč 'bush', žovc 'gall', etc., where the o and e occur before r or v are not subject to this rule. Foster handles these forms by positing u and i (ŭ, ĭ in our analysis) in the base forms and then lowering them to o and e respectively by the following rule:

$$\begin{bmatrix} +\text{voc} \\ -\text{cons} \\ +\text{flat} \end{bmatrix} \rightarrow [-\text{diff}] \; / \; \_\_ \begin{Bmatrix} r \\ \\ v \end{Bmatrix} \; C_1$$

3) This alternation does not occur in many pleophonic forms, that is, forms which contain the cluster $\begin{Bmatrix} e \\ o \end{Bmatrix} L \begin{Bmatrix} e \\ o \end{Bmatrix}$ (e.g. vorok 'sack', holod 'hunger', žerep 'mountain-pine'). Foster posits an (e,o:i) exception rule in his grammar "in order to account for the fact that the overwhelmingly large number of these forms do not shift to i, while relatively few forms do (approximately sixteen forms)."

The Consonantal System

Most analyses of the consonantal system of MLU posit four different sets of consonantal phonemes. In Bidwell (1967-68) and Andersen (1961), for instance, we find the following series:

velars: /k g x h /

post-alveolars: /š ž č ǯ /

dentals: / t d s z c ʒ n l r /

palatalized dentals: / t' d' s' z' c' ʒ' n' l' r' /

palatalized post-alveolars: /š' ž' č' / which "occur before /i/ and as geminates, and are listed as phonemes, since there is contrast between palatalized and non-palatalized geminate post-alveolars; žžaty 'to harvest' vs. zbiž'ž'a 'grain'." (Bidwell, p. 2)

However, in view of Foster's claim (p. 117) that all palatalization is predictable in Ukrainian, we shall posit only non-sharp segments in our inventory of underlying consonants, which will thus consist of the following segments:

p b t d s z k h x m n r l

We find that underlying velars shift to their corresponding strident palatals before front vowels as in the forms monaše (voc. sing. of monax) 'monk'; bože (voc. sing. of boh) 'God'; klyče 'he calls' (cf. klykaty 'to call'), and we might attain these results by having the velars undergo the application of the following rule:

$$(k{:}\breve{k}) \qquad \begin{bmatrix} +obst \\ +comp \end{bmatrix} \rightarrow \begin{bmatrix} +strid \\ -grv \end{bmatrix} \; / \; \_\_ \begin{bmatrix} -cons \\ -grv \end{bmatrix}$$

In addition, we require a rule which sharps consonants before front vowels (see the discussion in Chapter II, p. 14); but, we find that this rule must precede the rule which lowers and deletes lax diffuse vowels, for otherwise we would be unable to palatalize the t in t'ma 'darkness', for instance, as is evident from the following derivation:

	t'ma
	tĭm+a
(sharp)	t'ĭm+a
(lower)	
(del.)	t'm+a

The rule which accounts for this palatalization is as follows:

$$(C{:}C') \qquad C \rightarrow \begin{bmatrix} +sharp \end{bmatrix} \; / \; \_\_ \begin{bmatrix} -cons \\ -grv \end{bmatrix}$$

Moreover, this necessitates the positing of a desharping rule whereby consonants become depalatalized before e, thereby accounting for the retention of sharp t in t'ma as compared with tem (g. pl.). Although up to this point we have mentioned that consonants depalatalize only before e, we find that essentially the same process occurs before phonetic y (Foster: 22), and the rule which Foster posits to account for this process is as follows:

$$(desh) \qquad \begin{bmatrix} +cons \end{bmatrix} \rightarrow \begin{bmatrix} -sharp \end{bmatrix} \; / \; \_\_ \begin{bmatrix} +voc \\ -cons \\ -diff \\ -grv \end{bmatrix}$$

Compare the following derivations:

	t'ma	tem
	tǐm+a	tǐm+ŭ
(C:C')	t'ǐm+a	t'ǐm+ŭ
(lower)		t'em+ŭ
(del.)	t'm+a	t'em
(desh)		tem

In addition, Foster (p. 102) notes that earlier analysis of MLU have shown that strident palatals are invariably non-sharp except before phonetic i, and on this basis he posits the following (desh-š̆) rule:

$$\text{(desh-}\breve{\text{s}}\text{)} \qquad \begin{bmatrix} +\text{cons} \\ +\text{comp} \\ -\text{grv} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{sharp} \end{bmatrix}$$ [5]

[5]Since none of the forms we deal with contain sequences of the sort strident palatal plus i, we can get away with this more general formulation of the rule for the purpose of this thesis.

A Summary of the Phonological Rules

The following is a list of the phonological rules presented in this chapter in their relative order of application. They have been numbered to facilitate any future reference which may be made to them.

(k:x) (=3-1) $\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} / \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$

(e,o:i)[6] (=3-2) $\begin{bmatrix}\text{V}\\-\text{T}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{grv}\\+\text{diff}\\-\text{flat}\end{bmatrix} / \_\_ \text{C}_1 \begin{bmatrix}\text{V}\\-\text{T}\\+\text{diff}\end{bmatrix}$

(C:C') (=3-3) $\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{sharp}\end{bmatrix} / \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$

(lower) (=3-4) $\begin{bmatrix}\text{V}\\+\text{diff}\\-\text{T}\end{bmatrix} \rightarrow \left\{\begin{bmatrix}-\text{diff}\end{bmatrix} / \_\_ \text{C} \begin{bmatrix}\text{V}\\-\text{T}\\+\text{diff}\end{bmatrix}, \quad \emptyset\right\}$

(del.) (=3-5)

(desh) (=3-6) $\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{sharp}\end{bmatrix} / \_\_ \begin{bmatrix}\text{V}\\-\text{diff}\\-\text{grv}\end{bmatrix}$

(desh-š) (=3-7) $\begin{bmatrix}+\text{cons}\\+\text{comp}\\-\text{grv}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{sharp}\end{bmatrix}$

---

[6] For convenience, the (e,o:i) rule given here will sometimes be referred to in later chapters as the (e:i) or the (o:i) rule. All three labels are to be interpreted as referring to the same rule, i.e. rule (3-2).

CHAPTER IV

THE ABSTRACT ANALYSES

Analysis III: Base Form in ŭk

In this chapter we shall proceed to outline Foster's analysis of the diminutive suffix and attempt to evaluate the extent to which he is able to account for the essential data. Although his study of diminutives is not extensive, we shall use his analysis as a point of departure, keeping in mind the fact that Foster's description of MLU is based on the pronunciation of informants who represent the western variety of the so-called standard language (p. 8). The data which we wish to account for in our study are based on the eastern variety, which, today, is recognized as the norm; consequently, there will be points of divergence between the two types of pronunciation, and our rules will have to be adjusted to reflect these differences. According to Halle (1964: 343), many dialectal variations are due to different grammars containing different rules or different grammars containing differently ordered rules, which implies that the underlying representations involved may be identical. Thus in Chomsky and Halle (1968) we read that

> very different dialects may have the same or a very similar system of underlying representations. It is a widely confirmed empirical fact that underlying representations are fairly resistant to historical change, which tends, by and large, to involve late phonetic rules. If this is true, then the same system of representation for underlying forms will be found over long stretches of space and time. (p. 49)

If such is the case, then one would expect that both standardized varieties of Ukrainian could be derived from the same underlying representations with some minor adjustments in the phonological rules; thus, we should be able to derive the normative pronunciation from the base forms posited by Foster. Later, however, we will show that by positing a somewhat more complex lexical representation for the diminutive suffix we are able to derive both the recognized Standard pronunciation as well as the dialectal variants by changing the ordering relationships of rules, whereas in order to derive the Standard forms from the base forms posited by Foster, we would require an extremely ad hoc fronting rule of very limited application.

Upon examining some forms which contain the diminutive suffix -ok, we find that the o of this suffix alternates with Ø, as in myska (cf. mysok g. pl.) 'bowl', vylka (cf. vylok g. pl.) 'pitchfork', kurka (cf. kurok g. pl.) 'chicken', etc., and since lax i and u are the underlying segments which account for the e,o:Ø alternation in Foster's analysis, he posits uk as the basic form of the diminutive suffix (p. 50). In terms of the notational conventions we set up in Chapter III, this corresponds to our representation ŭk, and in order to avoid introducing merely notational discrepancies, we shall henceforth characterize the base form of the diminutive suffix as ŭk, even in reference to Foster's rules.

We find that velars alternate with strident palatals before this particular suffix (p. 162), that is:

muška (g. pl. mušok) 'little fly' cf. muxa
mišok (g. sing. miška) 'sack' cf. mix
nižka (g. pl. nižok) 'little foot' cf. noha
hrišok (g. sing. hriška) 'venial sin' cf. hrix

To account for the strident palatals before ŭk, Foster (p. 162) extends the environment of the (k:č) rule in the following manner:

(3-1a)
(3-1b)

$$\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} \quad / \_\_ \quad \left\{ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix} \quad +\underline{\text{uk}}+ \right\}$$

We have selected some forms which are representative of the first four groups listed in the Appendix, and will now attempt to derive them on the assumption that the base form of the diminutive suffix is, in fact, ŭk. We shall utilize the rules presented in Chapter III and will indicate by means of asterisks those instances where the results obtained differ from the accepted norm.

Gr. 1			Gr. 2	
	sadok	rižok		hiročok
	sad+ŭk+ŭ	roh+ŭk+ŭ		hor+ŭk+ŭk+ŭ
(k:č)	_____	rož+ŭk+ŭ		hor+ŭč+ŭk+ŭ
(o:i)	_____	riž+ŭk+ŭ		hir+ŭč+ŭk+ŭ
(C:C')	_____	r'iž+ŭk+ŭ		h'ir+ŭč+ŭk+ŭ
(lower)	sad+ok+ŭ	r'iž+ok+ŭ		h'ir+oč+ok+ŭ
(del.)	sad+ok	r'iž+ok		h'ir+oč+ok

Gr. 3		Gr. 4	
	ručečok		viderečok
	ruk+ŭk+ŭk+ŭ		vidĭr+ŭk+ŭk+ŭ
(k:č)	ruč+ŭč+ŭk+ŭ		vidĭr+ŭc+ŭk+ŭ
(C:C')	_____		v'id'ĭr+ŭc+ŭk+ŭ
(lower)	ruč+oč+ok+ŭ		v'id'er+oč+ok+ŭ
(del.)	*ruč+oč+ok		v'id'er+oč+ok
(desh)	_____		*v'ider+oč+ok

The preceding derivations illustrate that we are unable to account for some of the Standard forms and instead of ručečka, krylečko, etc., we derive *ručočka, *kryločko, etc. Although Foster does, in fact, posit a rule whereby o goes to e after a [-H] stem,[1] this rule would not rectify the situation we describe here, for ruk-, kryl- do not belong to the category of [-H] stems. It appears, then, that if we wish to correctly derive the Standard forms of compound diminutives (CD's) by positing ŭk as the base form, we are confronted with the problem of fronting o in certain additional environments. Furthermore, if we list a variety of forms and categorize them as we have done in the Appendix, we discover a definite pattern and a certain degree of predictability in the occurrence of e and o. It appears that e occurs in the following environments:

1) after a velar root (Gr. 3)
2) after a neuter root (Gr. 4)
3) after a soft fem. root (Gr. 5)

} in CD's

As mentioned above, if we proceed on the assumption that the base form of the diminutive suffix is ŭk, then we would presumably have to regard the occurrence of e in the above environments as a consequence of a fronting process, and it is obvious that stating all of this information in the form of a rule

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[1]Foster accounts for the difference between such forms as rukoju vs. mušeju by a rule which shifts basic o to e after a [-H] stem (where the diacritic feature [-H] refers to stems which exhibit final palatals or sharp dentals.).

would be extremely cumbersome, that is:

$$(4\text{-}1)\quad \underline{o} \rightarrow \underline{e} \,/\, \left\{ \begin{array}{l} \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix}_{\text{Root}} + \_\_ \\ [+\text{N}]_{\text{Root}} + \_\_ \\ \begin{bmatrix} -\text{H} \\ +\text{F} \end{bmatrix}_{\text{Root}} + \_\_ \end{array} \right\} \text{in CD's}$$

Furthermore, and even more disturbing, such a rule would be motivated strictly on the basis of diminutive formation and would not have a wider application. That is, if we were to attempt to make this rule more general by removing the restrictions on it (i.e. to simplify the rule to $\underline{o} \rightarrow \underline{e} \,/ \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix} \_\_$), we would be making the claim that the sequence velar plus o is inadmissable in Ukrainian, which is contrary to fact. There exist numerous examples where such a sequence occurs both root internally (e.g. k<u>o</u>n'a, k<u>o</u>ta, x<u>o</u>če, etc.) and across morpheme boundaries (e.g. moloko, rikoju, etc.). In order that the rule apply only within the diminutive suffix, we are thus forced to place very stringent restrictions on the environment, with the result that we have a complex rule of very limited application -- all of which indicates that Foster's underlying representation for the diminutive suffix (i.e. <u>ŭk</u>) may be incorrect.

The Suffix of Endearment

Since the main difficulties encountered in the analysis described thus far in this section all seem to stem from the fact that we cannot account for certain vowel shifts, we shall study the problem in a larger frame of reference in an attempt to shed some light on the problem of the hypothetical fronting rule, that is rule (4-1) above. Consider, for example, the diminutives ručen'ka 'little hand', nižen'ka 'little foot' and xmaron'ka 'little cloud'. These forms, which Stankiewicz (p. 129) refers to as affectionate diminutives, carry concomitant meanings of affection and of diminution and preserve the gender of the base noun. From these examples it is clear that two morphemes are involved: our diminutive suffix ŭk preceded by what Stankiewicz calls the suffix of endearment (SE)[2]. Thus, ručen'ka, for example would be derived from ruk+SE+ŭk+a. This situation now enables us to study the behavior of the diminutive suffix in an environment other than after a root (as in ručečok from ruk+ŭk+ŭk-ŭ) or after another diminutive suffix (as in ručečok from ruk+ŭk+ŭk+ŭ). Interestingly enough, however, the problems encountered in the derivation of both compound and affectionate diminutives are tantalizingly similar in that:

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[2]We shall consider the problem of assigning an underlying representation to this morpheme on p. 43 below.

1) velars shift to palatals before both the diminutive and endearment suffixes.

2) o and e alternate with i before these suffixes.

3) the distribution of o and e of these suffixes is identical.

4) lax vowels are retained before these suffixes.

Compare the following forms:

	Compound Dim.		Affectionate Dim.	
Gr. 2	xmaročka	/ -čok	xmaron'ka	/ -n'ok
	kisočka	"	kison'ka	"
	babočka	"	babon'ka	"
Gr. 3	ručečka	/ - čok	ručen'ka	/ -n'ok
	nižečka	"	nižen'ka	"
	mušečka	"	mušen'ka	"
Gr. 4	sonečko	/ -čok	sonen'ko	/ - n'ok
	serdečko	"	serden'ko	"

Because there is no mention of the SE suffix in Foster's work, we can only speculate as to the manner in which he would account for the affectionate diminutives. However, since Foster claims that the (o,e:i) alternation occurs only if the following syllable contains a lax (flat) diffuse vowel, he would presumably posit a lax vowel in the underlying representation of the SE morpheme, in view of the facts we have just summarized above; and, since the behavior of this morpheme is so similar to that of the ŭk morpheme, we assume that this lax vowel should also be ŭ. Furthermore, since Foster also claims that all sharpness is predictable by rule (p. 117), we are led to assume that Foster's underlying representation for the suffix of endearment would be ŭn.

This representation presents certain problems, however. First of all, we find that we have no way (utilizing the set of rules summarized in Chapter III) to account for the sharp n in such forms as xmaron'ka (from xmar+ŭn+ŭk+a), since Foster's sharping rule applies only before a front vowel or jod. One possibility would be to say that the n becomes palatalized before the ŭk suffix, in which case we would have to extend the sharping rule in the same way as Foster extends his (k:č) rule (3-1b), that is to say:

$$\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{sharp}\end{bmatrix} / \_ \left\{ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix} \right\} \\ +\text{uk}+$$

But this would also be unsatisfactory because it is not a true generalization about all consonants which may appear before the diminutive suffix. If we compare the base forms of xmaron'ok (from xmar+ŭn+ŭk+ŭ) and mlynok (from mlyn+ŭk+ŭ), for instance, we notice that although we want the n of the first form to become sharp before ŭk, such is not the case with n of mlynok, and yet, as formulated above, our rule would apply to both these segments indiscriminantly. One way to avoid this would be to extend the environment of the sharping rule to include only the final segment of ŭn, thereby predicting the sharpness of n by some ad hoc means such as the following:

$$\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{sharp}\end{bmatrix} / \left\{ \begin{matrix} \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix} \\ + \text{u} \begin{bmatrix}\text{n}\\-\end{bmatrix} + \end{matrix} \right\}$$

If we adopt this method of predicting the sharpness of n, however, we would presumably have to include other derivational suffixes whose final consonants are predictably sharp, such as us' (cf. didus', mamus'a, babus'a, etc.); tel' (cf. učytel', učytel'ka, zasidatel', etc.); ul' (cf. divul'a, kryvul'ka, etc.) and others. The only other solution would thus seem to be to mark all the suffixes of this type with some sort of a diacritic feature which would serve to indicate that the sharping rule must obligatorily apply to their final segments. If appears, therefore, that we are confronted with having to make a choice between positing an underlying sharp segment in these suffixes, thereby contradicting the otherwise defensible claim set forth by Foster, or predicting sharpness by ad hoc rule.

Interestingly enough, a similar problem arises in connection with the derivation of nouns whose roots predictably end in sharp consonants. In the Appendix we listed two groups of nouns which we referred to as soft stem nouns, but have not yet dealt with them in any detail. Because these particular stems exhibit sharp stem final consonants in most of their derivatives Foster and Lightner mark them with the diacritic feature [-H]. Both treat nouns of this type as exceptional in that they exhibit sharp final consonants in all environments except before the vowels e and y (i.e. where the desharping rule applies): don'a 'daughter', kin' 'horse', hist' 'guest', etc. These facts are accounted for by means of the following rule (Foster: 180):

$$[+\text{cons}] \rightarrow [+\text{sharp}] / \left[\frac{\quad}{-H}\right)_{NS}$$

If we were also to mark the derivational suffixes mentioned on p. 45 with the diacritic feature [-H] and have them, too, undergo the application of the above rule, then the rule could be slightly simplified to read as follows:

(3-3b) $$[+\text{cons}] \rightarrow [+\text{sharp}] / \left[\frac{\quad}{-H}\right] +$$

This, then, is one method of predicting sharp final consonants in both soft stem nouns and those derivational suffixes whose final consonantal segements are predictably sharp.

To account for nouns of the type pič 'oven' (cf. pekty 'to bake') and duša 'soul' (cf. dux 'spirit'), where stem final velars alternate with strident palatals, Foster (p. 178) also marks these stems with the diacritic feature [-H] and has them undergo the application of the (k:č) rule, which he extends in the following manner:

$$\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} / \left[\frac{\quad}{-H}\right)_{NS}$$

Apparently it is necessary to mark these stems in some such fashion in order to distinguish them from the stems of ruka, horix, etc., where this alternation does not occur.

Before leaving this problem we would like to mention that Kiparsky has proposed in a recent paper (1968: 10) that "the theory of generative phonology should be modified to exclude the diacritic use of phonological features, and the phonological use

of diacritic features, and the lexicon should contain non-alternating forms in roughly their autonomous phonemic representations." Since nouns such as kin', hist', duša, etc. exhibit stem final palatals or sharp dentals in the vast majority of their derivatives, Kiparsky would presumably posit kon'-, duš-, host'-, etc. as the underlying forms, instead of predicting these variants by rule. By the same token, we might posit underlying sharp segments in the so-called [-H] derivational suffixes, as well, in which case the base form of the suffix of endearment would contain a sharp n. Foster (p. 182) criticizes such an analysis on the grounds that by positing underlying sharp consonants and strident palatals, we tend to obscure the relationships which exist among many morphemes, as, for example, between pič 'oven' and pekty 'to bake'.

If, however, we consider these [-H] stems exceptional in the sense that instead of taking the nom. sing. ending ŭ, they take an ĭ variant instead, then we could achieve the same results by means of a set of reasonably natural rules. That is to say that the (k:č) and (C:C') rules would operate in a natural environment (before a front vowel or jod) and consequently could be simplified to read as follows:

$$\text{(3-1a)} \qquad \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{strid} \\ -\text{grv} \end{bmatrix} / \_\_ \begin{bmatrix} -\text{cons} \\ -\text{grv} \end{bmatrix} \qquad (=3\text{-}1)$$

$$\text{(3-3a)} \qquad [+\text{cons}] \rightarrow [+\text{sharp}] / \_\_ \begin{bmatrix} -\text{cons} \\ -\text{grv} \end{bmatrix} \qquad (=3\text{-}3)$$

However, the forms which take a vocalic desinence on the phonetic

level present a problem, for we are unable to account for the sharp consonants in kon'a and don'a, for example, where a is the g. sing. and nom. sing. endings, respectively (cf. kon+ĭ (nom. sing.) with kon+a (gen. sing.). To circumvent this difficulty, we might consider the possibility that these roots themselves end in a front vowel which always deletes.[3] This we could achieve by means of the following rules, which we find would be necessary in a more complete grammar in any case (see Foster: 141):

(ĭ:j) i → j / __ V

(j:Ø) j → Ø / C __

The following derivations will serve to illustrate the proposal we are setting forth. Compare the following derivations:

	kin'	kon'a
	konĭ+ŭ	konĭ+a
(ĭ:j)	konj+ŭ	konj+a
(e:i)	kinj+ŭ	———
(C:C')	k'in'j+ŭ	kon'j+a
(del.)	k'in'j	———
(j:Ø)	k'in'	kon'+a

An important ordering relationship must be observed however, between the (ĭ:j) rule and the (e,o:i) rule in order to prevent the latter from shifting the o in kon'a (from konĭ+a) to i, giving *kin'a; specifically, the (ĭ:j) rule must apply first so that we no longer have a lax diffuse vowel in the following

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[3]By the same token, we might consider positing ŭnĭ as the underlying representation of the suffix of endearment, and this possibility will be investigated in detail in a later section of this thesis.

syllable at the stage when the (e,o:i) rule would apply (i.e. konj+a). Also, we are forced to posit the nominative singular masculine ending ŭ in kin' for the following reasons. First, ĭ will go to j only if it is followed by another vowel (see preceding page). Secondly, in view of the rule ordering which must be imposed, we require a lax diffuse vowel after the j in order to trigger the change of o to i in such forms as kin' (e.g. konj+ŭ). Finally, we have chosen the grave lax diffuse vowel ŭ in order to have a consistent representation for the nominative masculine singular ending (see p. 28).

Summary of the Rules of Analysis III

The following is a summary of the rules which we would require in order to derive the diminutive substantives presented in the Appendix if we proceed on the assumption that the underlying representations of the diminutive and endearment suffixes are ŭk and ŭn, respectively. The rules are presented in the relative order of their application and are explicitly stated only in those instances where they differ from those presented in Chapter III.

(k:č) (=3-1a) (=3-1b)

$$\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} \;/\; \_\_ \left\{ \begin{array}{l} \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix} \\ \\ +\text{uk}+ \end{array} \right\}$$

(e,o:i) See Chapter III (p. 36)

(C:C') (=3-3a) (=3-3b)

$$\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{sharp}\end{bmatrix} \;/\; \left\{ \begin{array}{l} \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix} \\ \\ \begin{bmatrix}\overline{\quad}\\-\text{H}\end{bmatrix} + \end{array} \right\}$$

(lower) See Chapter III

(del.) See Chapter III

(front) (=4-1) o → e /

$$\left\{ \begin{array}{l} \begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} + \_\_ \\ \begin{bmatrix}+\text{N}\end{bmatrix}_{\text{Root}} + \_\_ \\ \begin{bmatrix}-\text{H}\\+\text{F}\end{bmatrix} + \_\_ \\ \text{Root} \end{array} \right\} \text{in CD's}$$

(desh) See Chapter III

(desh-š) See Chapter III

Sample Derivations for Analysis III

	rižok	sadočok	ručečka
	roh+ŭk+ŭ	sad+ŭk+ŭk+ŭ	ruk+ŭk+ŭk+a
(k:č)	rož+ŭk+ŭ	sad+ŭč+ŭk+ŭ	ruč+ŭč+ŭk+a
(o:i)	riž+ŭk+ŭ	———	———
(C:C')	r'iž+ŭk+ŭ	———	———
(lower)	r'iž+ok+ŭ	sad+oč+ok+ŭ	ruč+oč+ŭk+a
(del.)	r'iž+ok	sad+oč+ok	ruč+oč+k+a
(front)	———	———	ruč+eč+k+a

	viderečko	donečok	den'očok
	vidĭr+ŭk+ŭk+o	don[4]+ŭk+ŭk+ŭ	dĭn+ŭk+ŭk+ŭ
	[+N]	[-H]	[-H]
(k:č)	vidĭr+ŭč+ŭk+o	don+uč+uk+u	dĭn+ŭč+ŭk+ŭ
(o:i)	———	———	———
(C:C')	v'id'ĭr+ŭč+ŭk+o	don'+ŭč+ŭk+ŭ	d'ĭn'+ŭč+ŭk+ŭ
(lower)	v'id'er+oč+ŭk+o	don'+oč+ok+ŭ	d'en'+oč+ok+ŭ
(del.)	v'id'er+oč+k+o	don'+oč+ok	d'en'+oč+ok
(front)	v'id'er+eč+k+o	don'+eč+ok	———
(desh)	v'ider+eč+k+o	don+eč+ok	den'+oč+ok

[4]The root don- [-H] must be treated as an exception to the (o:i) rule.

The Neuter Diminutives

We have, in Ukrainian, another group of diminutives which usually denote baby animals or things pertaining to them and which are invariably of the neuter gender. Although our present study is not primarily concerned with these particular forms, the fact that they also contain sharp n appears to warrant some consideration of them here. Consider the following examples:

jastruben'a	'baby hawk'	(cf. jastrub) 'hawk'
kozen'a	'kid'	(cf. koza, kiz) 'goat'
koten'a	'kitten'	(cf. kit) 'cat'
sokolen'a	'baby falcon'	(cf. sokil) 'falcon'
sobačen'a	'baby dog'	(cf. sobaka) 'dog'
ptašen'a	'baby bird'	(cf. ptax) 'bird'
orlen'a	'baby eagle'	(cf. orel) 'eagle'
jatlen'a	'baby woodpecker'	(cf. jatel') 'woodpecker'

At first glance we might suspect that there is some similarity between the en' of the above forms and the suffix of endearment, as in ručen'ka (cf. ručen'a 'small hand'); but, upon closer examination, we find that these two suffixes behave quite differently. In particular:

1) The -en' suffix seems to condition the gender of the resulting derived forms, whereas the suffix of endearment does not.
2) o does not alternate with i before the -en' suffix, which indicates that this suffix does not contain a lax vowel

(cf. koza and kozen'a, but kizon'ka).

3) The vowel of the -en' suffix is consistently e, even in those instances where o occurs in the compound and affectionate diminutives.

For example: žabočka 'little frog' (comp. dim.)

žabon'ka 'little frog' (aff. dim.)

but: žaben'a 'baby frog' (neut. dim.)

4) The lax vowels delete before this suffix, which gives further indication that the vowel of the suffix is not itself lax (cf. orel; but: orlen'a).

In addition, we have the following neuter forms which also have the meaning of "offspring" or "pertaining to offspring."[5]

koz'a	'kid'	(cf. koza, kiz)
kot'a	'kitten'	(cf. kit)
ptaša	'baby bird'	(cf. ptax)
ruča	'a baby's hand'	(cf. ruka)
noža	'a baby's foot'	(cf. noha)

Interestingly enough, a t appears in the oblique cases and in derivatives of the neuter diminutives. For example:

kot'a	koten'a	(nom. sing.)
kot'aty	koten'aty	(g. sing.)
kot'ata	koten'ata	(nom. pl.)
kot'at	koten'at	(g. pl.)
kot'atka	koten'atka	(nom. pl.)

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[5]These particular forms were elicited from our informants.

Also, the consonant preceding the a(t)- in these forms is always sharp or palatal, which seems to suggest that the a may have originally been a front vowel which palatalized the preceding consonant and was then lowered. We find that the situation is precisely the same with neuter nouns which exhibit an en suffix in the oblique cases, as in the following forms, for instance:

(nom. sing.)	im'ja 'name'	plem'ja 'tribe'
(gen. sing.)	imeny	plemeny
(nom. pl.)	imena	plemena
(gen. pl.)	imen	plemen

Both Lightner and Foster have claimed that this particular phenomenon is a result of essentially the same process which produces the alternation (a:N) in verbs of the type načaty 'to begin' and načne 'he will begin'. They both posit i+men+. . . . as the underlying representation of the stem imen- and then shift the e to a before a nasal followed by a consonantal segment or a word boundary, correctly lowering the e in im'ja (from i+men##) but not in imena (from i+men+a##), where the rule does not apply. Foster's (p. 77) formulation of the rule which correctly lowers e in the appropriate environments is as follows:

$$(4\text{-a})\quad (VN)\qquad \begin{bmatrix} +voc \\ -cons \\ -grv \end{bmatrix} \rightarrow \begin{bmatrix} -flat \\ -diff \\ +grv \end{bmatrix} \;/\; \_\_\; N \begin{Bmatrix} C \\ \#\# \end{Bmatrix}$$

Similarly, na#kǐn+ty and na#kǐn+e will produce načaty and načne respectively, since rule (4-a) includes all front vowels and will therefore operate on the ǐ of these forms. To account for the deletion of the nasal before another consonantal segment as in the infinitive form na#kǐn+ty (which eventually

gives <u>načaty</u>), Foster (p. 74) posits the following nasal deletion rule:

$$\text{(4-b)}\quad (N{:}\emptyset)\quad \begin{bmatrix}+\text{nas}\end{bmatrix} \rightarrow \emptyset \;/\; \_\_\; \begin{bmatrix}+\text{cons}\end{bmatrix}$$

We also find that a nasal segment deletes in word-final position as in <u>im'ja</u> (from <u>i+men</u>##), but since Foster supplied independent motivation for a consonant deletion rule which deletes other consonants in word-final position, he coalesces the two rules and simply states (p. 210) that:

$$\text{(4-c)}\quad (C{:}\emptyset)\quad \begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \emptyset \;/\; \_\_\; \#\#$$

Finally, to account for the <u>j</u> which appears between sharp labials and <u>a</u> in such forms as <u>im'ja</u> and <u>plem'ja</u>, Foster (p. 119) suggests the following rule which inserts <u>j</u> in this environment:

$$\text{(4-d)}\quad (\emptyset{:}j)\quad \emptyset \rightarrow j \;/\; \begin{pmatrix}+\text{grv}\\ -\text{comp}\\ +\text{sharp}\end{pmatrix} \_\_\; \underline{a}\ (=\text{basic tense } \underline{o})$$

Sample Derivations

	im'ja	imena
	<u>i+men##</u>	<u>i+men+a##</u>
(C:C') (=3-3a)	i+m'en##	i+m'en+a##
(VN)	i+m'an##	_____
(C:∅)	i+m'a	_____
(∅:j)	i+m'ja	_____
(desh) (=3-6)	_____	i+men+a

We are thus proposing that all the neuter diminutives in -<u>en'a</u> which are listed on p. 52 contain the suffixes <u>+en+en+t+</u> in their underlying representations, and that the presence of <u>a</u> in

the nom. sing. forms, as well as the appearance of t in the oblique cases, is essentially a consequence of the same type of process described in the foregoing discussion of the substantives im'ja and plem'ja. To illustrate, we shall derive the forms koten'a and koten'aty (gen. sing. of koten'a):

	koten'a	koten'aty
	kot+en+en+t##	kot+en+en+t+y##
(C:C') (=3-3a)	kot'+en'+en+t##	kot'+en'+en+t+y##
(VN)	kot'+en'+an+t##	kot'+en'+an+t+y##
(N:Ø)	kot'+en'+a+t##	kot'+en'+a+t+y##
(C:Ø)	kot'+en'+a	
(desh) (=3-6)	kot+en'+a	kot+en'+at+y

Although historical evidence indicates that forms of the type plem'ja and im'ja (traditionally referred to as the en-stem neuters) actually consist of a root plus the derivational suffix men,[6] we feel that in a synchronic study of this sort we might well consider analyzing these particular forms as containing the roots plem- and im- plus the suffix en, thereby enabling us to show that all neuters which exhibit extended stems in the oblique cases contain the en suffix(es) in their underlying representations and, furthermore, that the so-called t-stem neuters (such as tel'a and tel'aty) actually differ from the en-stem neuters only in that they take the additional suffix t, as illustrated in the following derivations:

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[6]According to Samijlenko (pp. 66-67), the reconstructed Indo-European proto form of plem'ja contained the root *pled plus the suffix men.

	imena	tel'ata (nom. pl. of tel'a)
	im+en+a	tel+en+t+a
(C:C') (=3-3a)	im'+en+a	t'el'+en+t+a
(VN)	———	t'el'+an+t+a
(N:Ø)	———	t'el'+a+t+a
(desh) (=3-6)	im+en+a	tel'+a+t+a

	ruča	ručen'a	ručen'at (g. pl.)
	ruk+en+t##	ruk+en+en+t##	ruk+en+en+t+ŭ##
(k:č) (=3-1a)	ruč+en+t##	ruč+en+en+t##	ruč+en+en+t+ŭ##
(C:C') (=3-3a)	ruč'+en+t##	ruč'+en'+en+t##	ruč'+en'+en+t+ŭ##
(VN)	ruč'+an+t##	ruč'+en'+an+t##	ruč'+en'+an+t+ŭ##
(N:Ø)	ruč'+a+t##	ruč'+en'+a+t##	ruč'+en'+a+t+ŭ##
(C:Ø)	ruč'+a	ruč'+en'+a	———
(del.) (=3-5)	———	———	ruč'+en'+a+t
(desh) (=3-6)	———	ruč+en'+a	ruč+en'+a+t
(desh-š)(=3-7)	ruč+a	———	———

Although we are unable at this point to provide formal syntactic justification to show that the en suffixes in imena and tel'ata are related, we shall reiterate the suggestion set forth earlier, that is to say, that in a synchronic analysis we might better consider im and plem as the roots of these en-stem nouns rather than i and ple, even though the latter appears to be the historically more accurate analysis. We were able to find the following two forms in Hrynčenko's dictionary of 1908, however, which seem to lend further support to our hypothesis that the en-stem and t-stem neuters basically differ only with respect to the presence or absence of the t suffix. Compare the following forms:

t-stem (a) plem'ja (cf. plem'jaty g. sing.) 'tribesman'

en-stem (b) plem'ja (cf. plemeny g. sing.) 'tribe'

		a	
		plem'ja	plem'jaty
		plem+en+t##	plem+en+t+y##
(C:C')	(=3-3a)	pl'em'+en+t##	pl'em'+en+t+y##
(VN)		pl'em'+an+t##	pl'em'+an+t+y##
(N:Ø)		pl'em'+a+t##	pl'em'+a+t+y##
(C:Ø)		pl'em'+a	———
(Ø:j)		pl'em'ja	pl'em'j+a+t+y
(desh)	(=3-6)	plem'ja	plem'j+a+t+y

		b	
		plem'ja	plemeny
		plem+en##	plem+en+y##
(C:C')	(=3-3a)	pl'em'+en##	pl'em'+en+y##
(VN)		pl'em'+an##	———
(C:Ø)		pl'em'+a	———
(Ø:j)		pl'em'j+a	———
(desh)	(=3-6)	plem'j+a	plem+en+y

In any event, we find that the en suffix which occurs in the neuter diminutives of the type ruč'en'a behaves quite differently phonologically from the suffix of endearment and presents a number of extremely intriguing problems of its own which clearly warrant further investigation.

Analysis IV: Base Form in ǐk

As a consequence of postulating ŭk as the base form of the diminutive suffix, we found that we had to account for the shift of velars to strident palatals before a back vowel (i.e. the ŭ of the ŭk suffix), and therefore appeared to require an *ad hoc* palatalization rule (3-1b) which would predict this alternation. An obvious means of overcoming the need for such a rule would be to posit ǐk instead, thereby enabling the alternation of velar with palatal to occur in a natural environment, namely, before a front vowel. Therefore, if we assume that the base form of the diminutive suffix is ǐk, we can derive such forms as nižka from noha, ručka from ruka by positing underlying velars and having them undergo the application of rule (3-1a), thereby eliminating the need for extending the environment of the (k:č) rule as in (3-1b) and permitting it to read simply as follows:

$$\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} / \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$$

But now we find that our lowering rule (3-4) will derive e from the lax front vowel of the diminutive suffix, giving *nižek, *rižek, etc. instead of the desired nižok, rižok, etc. The main problem here thus appears to be that we must account for the shift of e to o in this particular environment. We might say tentatively that:

(4-2) e → o / + __ k##

Assuming that the base form of the diminutive suffix is, in fact, ǐk, we can now derive the forms mlynok and rižok

utilizing the backing rule (4-2):

	mlynok	rižok
	mlyn+ǐk+ŭ	roh+ǐk+ŭ
(k:č) (=3-1a)	———	rož+ǐk+ŭ
(o:i)	———	riž+ik+ŭ
(C:C') (=3-3a)	mlyn'+ǐk+ŭ	r'iž'+ǐk+ŭ
(lower)	mlyn'+ek+ŭ	r'iž'+ek+ŭ
(del.)	mlyn'+ek	r'iž'+ek
(desh)	mlyn+ek	r'iž+ek
(back) (=4-2)	mlyn+ok	r'iž+ok

Foster (p. 164) has proposed an (e:o) rule which shifts e to o after palatal obstruents before non-sharp segments as, for example, in pšono 'millet' vs. pšenyc'a 'wheat', where this change does not occur due to the fact that the n in pšenyc'a is still sharp at the stage when the (e:o) rule applies. Although Foster's rule would correctly account for the shift of e to o in rižok, for instance, it would not work for mlynok and other such forms where the e is preceded by a non-compact consonant. Therefore, we shall continue to utilize our own backing rule (4-2) to account for this shift.

Complications arise, however, when we attempt to extend this analysis to the compound diminutives, which would now be treated as having two ǐk suffixes in their underlying representations. Consider the following representative sample of data copied from the Appendix.

Gr. 2	mlynočok	from	mlyn+ǐk+ǐk+ŭ
Gr. 3	ručečok	from	ruk+ǐk+ǐk+ŭ
Gr. 4	krylečok	from	kryl+ǐk+ǐk+ŭ
Gr. 5	donečok	from	don+ǐk+ǐk+ŭ
Gr. 6	den'očok	from	dǐn+ǐk+ǐk+ŭ

From the above examples we can see that by utilizing the backing rule (4-2), we are able to account for the forms of Groups 3, 4, and 5, but not for the shift of e to o after the root in forms of Groups 2 and 6. Although it so happens that the roots of these particular examples end in dentals, there are numerous other forms in Groups 4 and 5 whose roots also end in dentals, which indicates that the change of e to o could not be determined on a purely phonological basis. Furthermore, we could not correctly derive den'oček with a soft n (i.e. Gr. 6) even if we were able to account for the shift of e to o after the root. Compare the following masculine compound diminutives:

	mlynoček	den'oček
	mlyn+ík+ík+ŭ	dĭn+ĭk+ĭk+ŭ
(k:č)	mlyn+ĭc+ĭk+ŭ	dĭn+ĭč+ĭk+ŭ
(C:C')	mlyn'+ĭč'+ĭk+ŭ	d'ĭn'+ĭč'+ĭk+ŭ
(lower)	mlyn'+eč'+ek+ŭ	d'en'+eč'+ek+ŭ
(del.)	mlyn'+eč'+ek	d'en'+eč'+ek
(desh)	mlyn+eč+ek	den+eč+ek
(back)	* mlyn+eč+ok	*den+eč+ok

It appears, therefore, that if we proceed on the assumption that the base form of the diminutive suffix is ĭk, then in order to account for the shift of e (derived from basic ĭ) to o in the forms presented in the Appendix, we would presumably have to posit some more complicated backing rule such as the following:

$$(4\text{-}3) \quad e \rightarrow o \quad / \quad \left\{ \begin{array}{l} \left(+M\right) \underset{\text{Root}}{} + \_\_ \\ \left(\begin{array}{l} +H \\ +F \end{array}\right) \underset{\text{Root}}{} + \_\_ \\ + \_\_ \; k\#\# \end{array} \right\} \text{ in CD's}$$

The original motivation for positing ǐk as the base form, rather than ŭk, was that, in doing so, we could eliminate the need for the ad hoc palatalization rule (3-1b); but, as it turns out, we seem to require an even more complicated ad hoc backing rule (4-3) as a consequence of this choice. Thus, all in all, we do not appear to have gained anything by our suggested change in underlying representations.

Let us consider, on the other hand, the possibility that Groups 2 and 6 are regular and that Groups 3, 4, and 5 are exceptional, and attempt to formulate a rule on that basis. Instead of backing e only in the environment before a word-final k, let us make the environment more general and say that e goes to o before any compact consonant, thereby enabling us to account for both e's shifting to o in mlynočok, for instance.

More formally, the tentative rule is:

$$e \rightarrow o \; / \; \_\_ \begin{pmatrix} +obst \\ +comp \end{pmatrix}$$

This reformulation will now permit us to derive the proper forms in Groups 1 and 2; and, in fact, would also correctly back the e in den'očok (i.e. Gr. 6). But as mentioned before, we are still unable to account for the retention of sharp n in forms belonging to this group, that is the masculine soft stem diminutive substantives. The following derivations will illustrate how the application of the backing rule would correctly back e in the required instances, enabling us to derive the forms of Gr. 1 and 2.

	rižok (Gr. 1)	hiročok (Gr. 2)
	roh+ǐk+ŭ	hor+ǐk+ǐk+ŭ
(k:č)	rož+ǐk+ŭ	hor+ǐč+ǐk+ŭ
(o:i)	riž+ǐk+ŭ	hir+ǐč+ǐk+ŭ
(C:C')	r'iž'+ǐk+ŭ	h'ir'+ǐč'+ǐk+ŭ
(lower)	r'iž'+ek+ŭ	h'ir'+eč'+ek+ŭ
(del.)	r'iž'+ek	h'ir'+eč'+ek
(desh)	r'iž+ek	h'ir+eč+ek
(back)	r'iž+ok	h'ir+oč+ok

We do not, however, want the backing rule to apply to the vowel of the first diminutive suffix of compound diminutives when that vowel is itself preceded by a compact consonant as in the forms of Group 3 (see Appendix). We can prevent this by adding an exception statement to the backing rule as follows:

$$\underline{e} \rightarrow \underline{o} \;/\; \_\_ \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix} \text{ (except } / \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix} \; \_\_ \text{)}$$

The addition of such a restriction has now made it virtually impossible to derive the sequence -čok in word-final position, and we derive instead *mlynoček, *ručeček, etc. Therefore, it appears that we must make a further restriction on the backing rule and say that:

$$\underline{e} \rightarrow \underline{o} \;/\; \_\_ \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix} \text{ (except } / \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix}_{\text{Root}} + \_\_ \text{ in CD's)}$$

A similar problem arises in connection with the behavior of the ǐk suffix after neuter roots (see Gr. 4). Because the exception statement blocks the application of the backing rule only when the e itself is preceded by a compact consonant, this e would still shift to o after neuter roots, incorrectly giving us *mistočko, *kryločko, etc. instead of the Standard

forms <u>mistečko</u>, <u>krylečko</u>, etc. We must, therefore, mark these neuter roots with some diacritic feature in order to prevent the rule from applying to such forms as mistečko, etc. Without such an adjustment, we would be unable to derive <u>misteček</u> (g. pl. of mistečko) 'town', for, assuming that the underlying representations of <u>mistoček</u> (masc. sing.) 'bridge' and <u>misteček</u> are <u>most+ĭk+ĭk+ŭ</u> and <u>mist+ĭk+ĭk+ŭ</u>, respectively, we would eventually derive <u>mistoček</u> in both instances. Incorporating this adjustment into our backing rule, we obtain:

$$\underline{e} \rightarrow \underline{o} \;/\; \_\_ \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix} \text{ (except } / \left\{ \begin{array}{l} \begin{pmatrix} +\text{obst} \\ +\text{comp} \end{pmatrix} + \text{Root} \; \_\_ \\ \begin{pmatrix} +\text{N} \end{pmatrix} + \text{Root} \; \_\_ \end{array} \right\} \text{in CD's)}$$

Compare the following derivations:

	mistoček	misteček
	<u>most+ĭk+ĭk+ŭ</u>	<u>mist+ĭk+ĭk+ŭ</u> (+N)
(k:č)	most+ĭč+ĭk+ŭ	mist+ĭč+ĭk+ŭ
(o:i)	mist+ĭč+ĭk+ŭ	
(C:C')	m'ist'+ĭč'+ĭk+ŭ	m'ist'+ĭč'+ĭk+ŭ
(lower)	m'ist'+eč'+ek+ŭ	m'ist'+eč'+ek+ŭ
(del.)	m'ist'+eč'+ek	m'ist'+eč'+ek
(desh)	m'ist+eč+ek	m'ist+eč+ek
(back)	m'ist+oč+ok	m'ist+eč+ok

<u>Gr. 5</u> would presumably have to be accounted for in a similar fashion, so that the final formulation of our backing rule will be as follows:

$$(4\text{-}4)\quad \underline{e} \sim \underline{o} \;/\; \_\_\begin{pmatrix}+\text{obst}\\+\text{comp}\end{pmatrix}\left(\text{except}\;/\!/\;\left\{\begin{array}{ll}\begin{pmatrix}+\text{obst}\\+\text{comp}\end{pmatrix}\ \text{Root} & +\ \_\_\\ \begin{pmatrix}+\text{N}\end{pmatrix}\ \text{Root} & +\ \_\_\\ \begin{pmatrix}+\text{F}\\-\text{H}\end{pmatrix}\ \text{Root} & +\ \_\_\end{array}\right\}\ \text{in CD's}\right)$$

Our backing rule thus turns out to be very much of a rule of exceptions and no substantial improvement over rule (4-3). In any event, it is clear that although we have been able to eliminate the need for rule (3-1b) by positing ǐk as the underlying form of the diminutive suffix, we have at the same time introduced a whole gamut of new difficulties which once again seem to suggest that our base form for the suffix is incorrect.

The Suffix of Endearment

If we are attempting to develop an analysis which predicts all phonological changes strictly on phonological grounds, then we would presumably posit a front vowel in the suffix of endearment, in view of the fact that velars alternate with palatals before this particular suffix, as in ručen'ka (cf. p. 43). Also, roots preceding the suffix of endearment exhibit the (e,o:i) alternation (cf. p. 43), which suggests that the suffix contains the lax diffuse front vowel (namely, ǐ). Since we are proceeding on the assumption that the diminutive suffix is ǐk, we are now able to account for the sharp n in the suffix of endearment very naturally by having it undergo the application of our palatalization

rule (3-3), in view of the fact that it is now followed by a front vowel (i.e. the ĭ of the ĭk suffix as in ručen'ok from ruk+ĭn+ĭk+ŭ), which provides additional motivation for positing a front vowel in the diminutive suffix.[7] However, in order that we retain a sharp n in our derivations, we have to observe an important ordering relationship: specifically, the backing rule must precede the desharping rule, otherwise rule (3-6) would desharp n before e and incorrectly generate *ručenok instead of ručen'ok:

	ruk+ĭn+ĭk+ŭ	
(k:č)	ruč+ĭn+ĭk+ŭ	
(C:C')	ruč'+ĭn'+ĭk+ŭ	
(lower)	ruč'+en'+ek+ŭ	
(del.)	ruč'+en'+ek	but:
(desh)	ruč+en+ek	(back) ruč'+en'+ok
(back)	* ruč+en+ok	(desh) ruč+en'+ok

However, if we observe this particular ordering relationship in deriving mlynok, for instance, we would incorrectly derive *mlyn'ok, and even a simultaneous (unordered) application of these two rules would not give us the correct results. We have, therefore, an ordering anomaly with respect to the desharping and backing rules if we postulate ĭk as the diminutive suffix in both mlynok and ručen'ok, which seems to suggest that the diminutive suffixes in these two forms might have different underlying representations.

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[7]Compare this analysis of n with that of Analysis III, where we found that in order to predict the sharpness of n, we had to make a choice between positing an underlying sharp segment or predicting sharpness by ad hoc rule (p. 45).

We have decided, then, to posit ĭn as the base form of the suffix of endearment, but although the diminutive and endearment suffixes have different phonological shapes, their behavior is so similar that it would lead one to suspect that the nature of their consonantal segments is not connected with and does not influence the behavior of the vowels of these two suffixes (i.e. ĭk and ĭn). This would be contrary to the presupposition of our backing rule (4-4), for implicit in it was the claim that e shifts to o only before a compact consonant. Yet, we find that essentially the same type of alternation occurs in the affectionate diminutives, even though the vowel e of the suffix of endearment is followed by the consonant n. It is clear that we must reject our backing rule (4-4) if we are to account for affectionate diminutives. Although our backing rule (4-3) is obviously very ad hoc, it will, in fact, correctly predict the shift of e to o in all of the compound diminutives given in the Appendix; and, since the distribution of e and o in both compound and affectionate diminutives is identical (see p. 43), the same backing rule will also account for the affectionate diminutives. It thus appears virtually impossible to predict the shift of e to o on purely phonological grounds, as is evident upon examining the forms den'ok and xmaron'ok. Compare the following partial derivations:

	den'ok	xmaron'ok
	dĭn+ĭk+ŭ	xmar+ĭn+ĭk+ŭ
(C:C')	d'ĭn'+ĭk+ŭ	xmar'+ĭn'+ĭk+ŭ
(lower)	d'en'+ek+ŭ	xmar'+en'+ek+ŭ

From the preceding examples it is clear that although both e's occur in similar phonological environments (i.e. after a sharp dental before sharp n), we want to back the e of xmaron'ka, but not of den'ok, which seems to lend a measure of support to our rule (4-3) which applies only after certain roots and would therefore not affect the root vowel of den'ok. However, we are still unable to retain sharp n and desharp r in xmaron'ka, because the desharping rule would apply to both these segments simultaneously, producing either *xmaronok or *xmar'on'ok, depending upon how the desharping rule is ordered with respect to the backing rule:

	xmar+ĭn+ĭk+ŭ	
(C:C')	xmar'+ĭn'+ĭk+ŭ	
(lower)	xmar'+en'+ek+ŭ	
(del.)	xmar'+en'+ek	
(desh)	xmar+en+ek	(back)*xmar'+on'+ok
(back)	*xmar+on+ok	(desh) _____

In conclusion, it becomes obvious that if we proceed on the assumption that the diminutive and endearment suffixes have their respective base forms ĭk and ĭn, we encounter many difficulties which appear insoluble. Not only are we compelled to posit a backing rule (4-3) of very limited application, but even with such an obviously ad hoc rule we are still unable to account for the forms of Group 6. Nor are we able to resolve the various ordering anomalies encountered in the derivation of affectionate diminutives. All of these considerations seem to indicate once again that our underlying representations are incorrect.

The Rules of Analysis IV

The following is a list of the rules utilized in this analysis, presented in the relative order of their application. We shall give a detailed statement only in those instances where the rules differ from those presented in Chapter III.

(k:č) (=3-1a) $\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} / \_\begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$

(o:i) See Chapter III (p. 36)

(C:C') (=3-3a) $\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{sharp}\end{bmatrix} / \_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$

(lower) See Chapter III

(del.) See Chapter III

(desh) See Chapter III

(back) (=4-3) $\underline{e} \rightarrow \underline{o} \quad / \quad \left\{ \begin{array}{l} \begin{bmatrix}+\text{M}\end{bmatrix} + \underset{\text{Root}}{\_\_} \\ \begin{bmatrix}+\text{F}\\+\text{H}\end{bmatrix} + \underset{\text{Root}}{\_\_} \\ + \_\_ \text{ k \#\#} \end{array} \right\}$ in CD's

(desh-š) See Chapter III

Analysis V: Context Sensitive Lexicon A

We found that when we posited ŭk as the base form of the diminutive suffix, as we did in Analysis III, it became necessary to posit an extremely complex fronting rule (4-1) which shifted o to e in certain environments. On the other hand, by positing ĭk as the underlying representation (Analysis IV), we required a backing rule (4-3) which was also very ad hoc and which had very limited application. In addition, we encountered various ordering anomalies, and in some instances were unable to account for the correct phonetic results. In view of these difficulties, we now proceed to formulate a further reanalysis in which we posit four underlying suffixes -- ĭk, ŭk, ĭn, and ŭn -- whose distribution may be summarized as follows:

ĭk occurs: a) after velars (Gr. 3)
e.g. ručok from ruk+ĭk+ŭ
ručečok from ruk+ĭk+ĭk+ŭ

b) after neuter roots (Gr. 4)
e.g. krylečko from kryl+ĭk+ĭk+o

c) after soft fem. roots (Gr. 5)
e.g. donečka from don+ĭk+ĭk+a

d) after the suffix of endearment
e.g. xmaron'ka from xmar+ŭn+ĭk+a

ĭn occurs: a) same as above except for (d)

ŭk/ŭn occur: a) after masc. roots
e.g. sadočok from sad+ŭk+ĭk+ŭ
den'očok from dĭn+ŭk+ĭk+ŭ[8]

b) after fem. hard roots ending in a non-compact consonant
e.g. babočka from bab+ŭk+ĭk+a
babon'ka from bab+ŭn+ĭk+a

The first effect of our positing four suffixes in this way, of course, is that we complicate the lexicon considerably, but at the same time, as will become more apparent below, we do manage to eliminate most of the difficulties we encountered earlier. We still, however, have to contend with the shift of e to o in the environment before a word-final velar, for we have predicted ĭk after velars (e.g. ruk+ĭk+ĭk+ŭ) and after the suffix of endearment (e.g. ruk+ĭn+ĭk+ŭ) in order to predict the (k:č) and (C:C') alternations entirely on phonological grounds, but without any backing rule whatsoever, we would derive *ručečeк and *ručenek from these representations. Therefore, it appears that we still require the ad hoc backing rule (4-2) which shifts e to o in the environment before word-final k. We shall refer to this particular treatment as Analysis Va.

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[8]Although we have postulated dĭn+ŭk+ĭk+ŭ as the underlying representation of den'očok, we find that we are still unable to account for the soft n of this particular form and consequently cannot correctly derive the forms of Gr. 6, within the framework of this analysis. If we posit ŭk after the masc. soft stem roots, we are able to derive o directly from the ŭ of ŭk, but then we have no way of predicting the sharpness of the stem final consonant. If, on the other hand, we were to posit ĭk after these particular roots, we would be able to account for the sharp n, but then have no way of backing e (i.e. the e which is derived from the ĭ of ĭk), for our backing rule only shifts e to o in the environment before word-final k (cf. den'očok##).

An alternate method (Analysis Vb) of dealing with the shift of e to o before k## would be to posit ŭk as the final diminutive suffix, thereby enabling us to derive -ok## in all instances. This, in turn, would once again necessitate the extension of the (k:č) rule as in Analysis III in order that the rule apply before the diminutive suffix ŭk (e.g. in ruk+ĭk+ŭk+ŭ); that is:

(3-1a)
(3-1b)

$$K \rightarrow \overset{\vee}{C} \quad / \_ \quad \left\{ \begin{matrix} \begin{bmatrix} -\text{cons} \\ -\text{grv} \end{bmatrix} \\ +\text{uk}+ \end{matrix} \right\}$$

Similarly, the (C:C') rule would have to predict the sharpness of n in the suffix of endearment, in view of the fact that it will now be followed by ŭk. The rule which we proposed earlier was:

(3-3a)
(3-3b)

$$C \rightarrow \begin{bmatrix} +\text{sharp} \end{bmatrix} \quad / \left\{ \begin{matrix} \_ \begin{bmatrix} -\text{cons} \\ -\text{grv} \end{bmatrix} \\ \begin{bmatrix} -\overline{\text{H}} \end{bmatrix} \quad + \end{matrix} \right\}$$

We have also mentioned earlier that instead of marking the suffix of endearment with the diacritic feature [-H] and having it undergo the application of rule (3-3b), we might simply posit underlying sharp n. In any case, we see that if we go on the assumption that the four suffixes involved are ĭk, ŭk, ĭn, and ŭn, apparently we still have to choose between an ad hoc phonologically conditioned backing rule (4-2) and either two ad hoc morphologically conditioned palatalization rules (i.e. rules (3-1b) and (3-3b)) or one ad hoc morphologically conditioned

palatalization rule (i.e. rule (3-1b), depending upon whether we decide to predict sharpness by rule (3-3b), or to postulate underlying sharp segments. Within the framework of our Analysis V, then, there are two possible means of solving the (e:o) problem, and apart from the fact that in Analysis Vb the final diminutive suffix is predictably ŭk, the distribution of the suffixes in all other environments is identical to that outlined on pp. 70-71, that is:

			Analysis Va	Analysis Vb
Gr. 1	sadok	from	sad+ĭk+ŭ	sad+ŭk+ŭ
	rižok	from	roh+ĭk+ŭ	roh+ŭk+ŭ
Gr. 2	hirečka	from	hor+ŭk+ĭk+ŭ	hor+ŭk+ŭk+a
Gr. 3	ručečka	from	ruk+ĭk+ĭk+a	ruk+ĭk+ŭk+a
Gr. 4	krylečko	from	kryl+ĭk+ĭk+o	kryl+ĭk+ŭk+o
Gr. 5	donečka	from	don+ĭk+ĭk+a	don'+ĭk+ŭk+a or don+ĭk+ŭk+a {-H}
Gr. 6	den'očok	from	dĭn+ŭk+ĭk+ŭ	dĭn'+ŭk+ŭk+ŭ or dĭn+ŭk+ŭk+ŭ {-H}

The Rules of Analysis Va

(k:č) (=3-1a) $\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} / \_\begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$

(o:i) See Chapter III (p. 36)

(C:C') $\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{sharp}\end{bmatrix} / \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$

(lower) See Chapter III

(del.) See Chapter III

(back) (=4-2) e → o / + __ k##

(desh) See Chapter III

(desh - š) See Chapter III

The Rules of Analysis Vb

(k:ɣ) (=3-1a)

(=3-1b)

$$\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} / \_\_ \left\{ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix} \quad +\underline{\text{uk}}+ \right\}$$

(o:i) See Chapter III (p. 36)

(C:C') (=3-3a)

(=3-3b)

$$[+\text{cons}] \rightarrow [+\text{sharp}] / \left\{ \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix} \quad \begin{bmatrix}\overline{}\\-\text{H}\end{bmatrix}^{9} + \right\}$$

(lower) See Chapter III

(del.) See Chapter III

(desh) See Chapter III

(desh - ʁ) See Chapter III

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[9]This environment is unnecessary if we choose to posit underlying sharp segments.

Sample Derivations for Analyses Va and Vb

	Analysis Va	Analysis Vb
	sadočok	sadočok
	sad+ŭk+ĭk+ŭ	sad+ŭk+ŭk+ŭ
(k:č)	sad+ŭč+ĭk+ŭ	sad+ŭč+ŭk+ŭ
(C:C')	sad+ŭč'+ĭk+ŭ	
(lower)	sad+oč'+ek+ŭ	sad+oč+ok+ŭ
(del.)	sad+oč'+ek	sad+oč+ok
(back)	sad+oč'+ok	
(desh-š)	sad+oč+ok	

	ručen'ok	ručen'ok
	ruk+ĭn+ĭk+ŭ	ruk+ĭn+ŭk+ŭ (-H)
(k:č)	ruč+ĭn+ĭk+ŭ	ruč+ĭn+ŭk+ŭ
(C:C')	ruč'+ĭn'+ĭk+ŭ	ruč'+ĭn'+ŭk+ŭ
(lower)	ruč'+en'+ek+ŭ	ruč'+en'+ok+ŭ
(del.)	ruč'+en'+ek	ruč'+en'+ok
(back)	ruč'en'+ok	
(desh)	ruč+en'+ok	ruč+en'+ok

	Va	Vb		
	donečka	donečka		
	don+ĭk+ĭk+a	don+ŭk+ŭk+a (-H)	or	don'+ĭk+ŭk+a
(k:č)	don+ĭč+ĭk+a	don+ĭč+ŭk+a		don'+ĭč+ŭk+a
(C:C')	don'+ĭč'+ĭk+a	don'+ič+ŭk+a		don'+ĭč+ŭk+a
(lower)	don'+eč'+ĭk+a	don'+eč+ŭk+a		don'+eč+ŭk+a
(del.)	don'+eč'+k+a	don'+eč+k+a		don'+eč+k+a
(back)				
(desh)	don+eč'+k+a	don+eč+k+a		don+eč+k+a
(desh-š)	don+eč+k+a			

Analysis VI: Context Sensitive Lexicon B

It is obvious that even if we complicate our lexicon to a slight degree as in Analysis V, thereby eliminating some of our earlier difficulties, we must still apparently account for the sequences -ǰok and -n'ok in word-final position either by positing ŭk as the final diminutive suffix and predicting the palatalization of the preceding consonants by ad hoc rule (Analysis Vb), or by positing ĭk in this position, thereby predicting the palatalizations on phonological grounds; but, in order to account for the shift of e to o in this position we still require the rule (3-1b). Both alternatives are rather disturbing. Shevelov (1958) has some interesting and enlightening comments which pertain to the above problem, however. It appears that it is extremely difficult to trace the historical development of diminutives in Slavic because historical documents give very scanty evidence of their existence. In fact, many sources agree that diminution per se was a relatively late phenomenon. According to Shevelov (p. 341), diminutives such as kružok, which show the alternation of velar with palatal were still unknown in Old Church Slavonic and are considered by him to be exceptions in modern Slavic languages. He admits that the presence of a "hushing" consonant instead of a velar at the end of the root in these forms suggests that the following suffix was ĭk. But, because the dim. suffix is consistently ŭk everywhere except after velars, it is safe to conclude that

> in stems ending in a velar, the original suffix was ŭk . . . . After the first palatalization of velars, however, the alternation of velars with hushing consonants became so typical of dim. that it was transferred into these dim. as well. (p. 341)

Shevelov explains the alternation of velar with strident palatal, therefore, in terms of a process of analogical levelling, which is precisely the analysis reflected in rule (3-1b). This rule, then, is the formal synchronic analogue to Shevelov's diachronic analysis.

We mentioned earlier that Foster posits an (e:o) rule which backs e in the environment after a compact obstruent before a non-sharp segment (see p. 60), and although this particular rule would correctly shift e to o in -čok##, we temporarily rejected it because it must not apply after the n in mlynok (see p. 60). Although we have taken care of mlynok and other such forms by predicting the suffix ŭk after the masc. roots, we still are unable to utilize this particular formulation of the (e:o) rule to back e (derived from the ĭ in ĭk as in ruk+ĭn+ĭk+u) after the suffix of endearment, for here, as in mlynok, it follows a non-compact consonant. However, we also briefly entertained the possibility of positing ĭnĭ as the underlying representation for the suffix of endearment, where ĭ palatalizes the preceding consonant n, then changes to j before another vowel, and eventually deletes after a consonant (see p. 48). If we were to generalize Foster's rule and allow it to apply after any palatal segment, and if we then ordered this new version of the (e:o) rule after the rule which converts ĭ of ĭnĭ to j, then it would apply to the

string ruč+en'j+ek##, correctly shifting e to o after the j of the endearment suffix. This j would eventually delete in this environment, correctly generating -n'ok in word-final position. We therefore propose the following reformulation of the (e:o) rule:

$$(e{:}o)\ (=6\text{-}1) \qquad e \rightarrow o \ / \ \left[+\text{comp}\right] \_\_ \left[-\text{sharp}\right]$$

It may not be immediately obvious why we chose to posit ǐk in the form ručen'ok above (i.e. ruk+ǐnǐ+ǐk+ŭ), for instance, for now that we can very simply account for the sharp n in the suffix of endearment, we no longer appear to require that the front variant of the diminutive suffix follow the suffix of endearment in order to predict the sharpness of n (cf. p. 66); however, upon examining the compound diminutives, the reason becomes more apparent. If we posit ŭk as the final diminutive suffix as in ruk+ǐk+ŭk+a, we would still require the ad hoc rule (3-1b) which shifts k to č in the environment before ŭk, whereas by postulating ǐk in final position as we have done above, we no longer require this rule, in view of the fact that k is now followed by a front vowel. The following derivations will illustrate the argument we are attempting to present. Compare the following forms:

	ručečok	ručen'ok
	ruk+ǐk+ǐk+ŭ	ruk+ǐnǐ+ǐk+ŭ
(k:č)(=3-1a)	ruč+ǐč+ǐk+ŭ	ruč+ǐnǐ+ǐk+ŭ
(i:j)		ruč+ǐnj+ǐk+ŭ
(C:C')(=3-3a)	ruč'+ǐč'+ǐk+ŭ	ruč'+ǐn'j+ǐk+ŭ
(lower)	ruč'+eč'+ek+ŭ	ruč'+en'j+ek+ŭ
(del.)	ruč'+eč'+ek	ruč'+en'j+ek
(e:o)(=6-1)	ruč'+eč'+ok	ruč'+en'j+ok
(desh)(=3-6)	ruč+eč'+ok	ruč+en'j+ok
(j:∅)		ruč+en'+ok
(desh-ǯ)(3-7)	ruč+eč+ok	ruč+en'+ok

It is interesting that by reversing the order of application of the desharping and backing rules, we are able to generate the attested dialectal variants of the above diminutives as in the following examples:

		ruk+ĭk+ĭk+ŭ	ruk+ĭnĭ+ĭk+ŭ
(k:č)		ruč+ĭč+ĭk+ŭ	ruč+ĭnĭ+ĭk+ŭ
(i:j)			ruč+ĭnj+ĭk+ŭ
(C:C')		ruč'+ĭč'+ĭk+ŭ	ruč'+ĭn'j+ĭk+ŭ
(lower)		ruč'+eč'+ek+ŭ	ruč'+en'j+ek+ŭ
(del.)		ruč'+eč'+ek	ruč'+en'j+ek
(desh)(3-6)		ruč+eč+ek	ruč+en'j+ek
(e:o)(=6-1)	**	ruč+oč+ok[10]	ruč+en'j+ok
(j:∅)			ruč+en'+ok

As additional motivation for saying that the final diminutive suffix is not ŭk, but ĭk, we may note that if we were to posit ŭk in the underlying representation of ručečka (from ruk+ĭk+ŭk+a), we would have no way of sharping the č which would eventually be derived from k by rule (3-1b), and therefore rule (6-1) would always apply to the e of the first suffix, that is to ruč+eč+ok##, regardless of the order of application of the two rules involved. Observe the following partial derivation:

	ruk+ĭk+ŭk+ŭ
(k:č)	ruč+ĭč+ŭk+ŭ
(C:C')	ruč'+ĭč+ŭk+ŭ
(lower)	ruč'+eč+ok+ŭ
(e:o)(=6-1)	ruč'+oč+ok

Clearly, rule (6-1) would apply in this way to all forms of this type, since there is no way of sharping the č which

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[10]The notation ** will be used to designate attested dialectal variants.

follows the e in question, thereby making it impossible to derive the Standard forms of such diminutives as these. It appears, therefore, that we must posit ǐk as the final diminutive suffix in compound diminutives.

On the preceding page, we presented the derivation of **ručočok to illustrate that by reordering the desharping (3-6) and backing (6-1) rules, we are able to generate this attested dialectal variant of ručečok. If we attempt to do the same with the nom. sing. form, however, an interesting and significant point comes to light. Consider the following partial derivation:

	ruk+ǐk+ǐk+a
(k:č)(=3-1a)	ruč+ǐč+ǐk+a
(C:C')	ruč'+ǐč'+ǐk+a
(lower)	ruč'+eč'+ǐk+a
(del.)	ruč'+eč'+k+a

In view of the fact that the č which we have indicated above does not immediately precede the vowel e, our desharping rule (3-6) will not apply to it, and we are only able to desharp this č by our (desh-š) rule (3-7), which states that all strident palatals are predictably non-sharp. From the partial derivation given immediately above, it becomes clear that the results obtained will be largely dependent upon the order of application of the (e:o) and (desh-š) rules, for if we first desharp č, then the (e:o) rule will apply to the e immediately preceding it, producing **ručočka; and, if, on the other hand, we reverse the order and apply the backing rule while the č is still sharp, the e will not be subject to this process. We might conclude, therefore, that it is the order of application of the (e:o) rule with respect to the

(desh-š) rule which is the crucial consideration, and that in order to generate the Standard forms of the diminutive substantives, our backing rule must precede the (desh-š) rule. If, however, we were to utilize this ordering relationship in deriving the forms belonging to Group 6, we would derive *denečok and *penečok, for instance, instead of den'očok and pen'očok, (from dĭnĭ+ĭk+ĭk+ŭ and pĭnĭ+ĭk+ĭk+ŭ respectively); therefore, it appears that we must posit ŭk/ŭnĭ after masculine roots not ending in velar consonants.

We have decided, then, to posit the additional vowel ĭ in the underlying form of the suffix of endearment, and we also find that we can extend this analysis to those [-H] roots whose final consonants are predictably sharp and posit konĭ-, dĭnĭ-, etc. as the underlying representations of the forms mentioned on p. 47.[11] We discovered that there was a great deal of variation within the responses elicited from our informants with respect to the forms of the category of so-called [-H] stems.

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[11]As mentioned in Chapter IV, both Foster and Lightner mark roots of this type with the diacritic feature [-H] and predict sharpness of the stem final consonant by ad hoc rule. At first it is not apparent why they chose to treat these roots in such a fashion when the obvious solution would be to posit a front vowel or jod in the base forms of these morphemes. One possible reason might have been that, in both analyses, dentals and velars are replaced by strident palatals before j (Lightner: 86) by going through an intermediate stage of non-strident palatals; that is:

$$(t{:}\check{c}) \quad \begin{bmatrix} +\text{obst} \\ -\text{grv} \end{bmatrix} \rightarrow [+\text{comp}] \quad / \_\_ \ j$$

$$(k{:}\check{c}) \quad \begin{bmatrix} +\text{obst} \\ +\text{comp} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{strid} \\ -\text{grv} \end{bmatrix} \quad / \_\_ \begin{bmatrix} -\text{cons} \\ -\text{grv} \end{bmatrix}$$

(Footnote 11 is continued on page 83)

For instance, we elicited three different forms for the compound diminutive of l'al'ka 'doll'; these were **l'al'očka, **l'al'ečka and l'alečka (Standard), and we find that within the framework of this particular analysis we are able to generate all three variants by positing lĭalĭ as the base form of the root morpheme and simply changing the order of application of the backing, desharping and j-deletion rules. Compare the following derivations:

	l'alečka		** l'al'ečka
	lĭalĭ+ĭk+ĭk+a		lĭalĭ+ĭk+ĭk+a
(k:č)	lĭalĭ+ĭč+ĭk+a		lĭalĭ+ĭč+ĭk+a
(ĭ:j)	ljalj+ĭč+ĭk+a		ljalj+ĭč+ĭk+a
(C:C')	l'jal'j+ĭč'+ĭk+a		l'jal'j+ĭč'+ĭk+a
(lower)	l'jal'j+eč'+ĭk+a		l'jal'j+eč'+ĭk+a
(del.)	l'jal'j+eč'+k+a		l'jal'j+eč'+k+a
(e:o)		(e:o)	
(desh-š)	l'jal'j+eč+k+a	(desh-š)	l'jal'j+eč+k+a
(j:Ø)	l'al'+eč+k+a	(desh)	
(desh)	l'al+eč+k+a	(j:Ø)	** l'al'+eč+k+a

Therefore, if kostj (from kostĭ) were to undergo the application of the above rules, the t would shift to č. But if, however, we were to restrict the application of the (t:ť) rule to apply only across morpheme boundaries, then it would enable us to correctly derive svič̆a 'candle' (cf. svitlo 'light') from the base form svet+i+a (where i represents a noun suffix which shifts to j before another vowel); but, it would not apply to kostj+ŭ, since the environmental conditions are not met. To enable us to posit underlying front vowels in these roots, then, we would have to adjust the (t:ť) rule to apply only across morpheme boundaries.

	**	l'al'očka
		lĭalĭ+ĭk+ĭk+a
(k:č)		lĭalĭ+ĭč+ĭk+a
(i:j)		ljalj+ĭč+ĭk+a
(C:C')		l'jal'j+ĭč'+ĭk+a
(lower)		l'jal'j+eč'+ĭk+a
(del.)		l'jal'j+eč'+k+a
(desh-š)		l'jal'j+eč+k+a
(e:o)		l'jal'j+oč+k+a
(j:Ø)	**	l'al'+oč+k+a
(desh)		

The fact that we are able to derive all three of the above variants from a single underlying representation seems to lend a measure of support to Halle's hypothesis that dialectal variations are reflected in the rules of a grammar rather than in underlying representations. In reference to Halle's article, Saporta (1965) remarks that:

> the grammatical description of a given dialect may be converted into an adequate description of a related dialect by the addition, deletion, or reordering of a relatively small number of rules. Indeed, it is tempting to propose that the degree of difference between dialects is nothing more than a function of the number and type of such changes. (p. 219)

Further, he comments on the extent to which synchronic descriptions mirror actual diachronic developments and remarks that "when a descriptive grammar is set up to account for the greatest number of facts, it reflects certain historical processes," and that "synchronic facts often recapitulate historical changes" (p. 224). Kiparsky, too, admits that "while it is invalid to argue for or against a particular phonological analysis on the grounds that it does, or does not, reflect the historical developments, numerous kinds of valid and fruitful conclusions may still be drawn from diachrony to synchrony" (p. 13). Interestingly

enough, we find that our (e:o) rule (6-1) is, in fact, the formal analogue of the attested diachronic process where e underwent a process of so-called "labialization" (i.e. shifted to o) after a hushing consonant or a jod when this e was followed by a historically hard consonant or a syllable containing a back vowel[12] (Medvedjev: 66). The specification historically hard is very significant in this description, for historically, all strident palatals were soft in Ukrainian, and it was only about the XII century that they began to undergo a process of depalatalization; therefore, it is clear that if the labialization of e preceded the hardening of the palatals, then any e which was followed by one of these soft palatals was not subject to this shift. In fact Bezpal'ko (p. 144) explicitly states that the shift of e to o failed to occur in such forms as knyžečka, ložečka, etc. due to the fact that at the stage when the e underwent this process of labialization, the hushing consonants were still palatalized, and thus the e's preceding these hushing consonants were not affected by the process, thereby accounting for the retention of the e in knyžečka and other such forms. Therefore, the conclusions we have reached on the basis of synchronic evidence do, in fact, mirror the historical processes to a great extent.

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[12]This backing apparently affected e of any origin (including the e which was derived from the front jer), and this is the analysis which is reflected in our rules, for the rule which lowers the lax diffuse vowels (3-4) precedes the (e:o) rule (6-1), which would therefore apply to the e derived from underlying ĭ.

Lexical Rule for Analysis VI

The distribution of our suffixes may be summarized as follows:

ĭk occurs: a) after velars
e.g. ručok from ruk+ĭk+ŭ
ručečok from ruk+ĭk+ĭk+ŭ

b) after neuter roots (see Group 4)
e.g. krylečko from kryl+ĭk+ĭk+o

c) after fem. roots ending in ĭ (see Group 5)
e.g. donečka from donĭ+ĭk+ĭk+a

d) after the suffix of endearment[13]
e.g. xmaron'ka from xmar+uni+ik+a

ĭnĭ occurs: same as above except for (d)

ŭk/ŭnĭ occur: elsewhere
e.g. sadok from sad+ŭk+ŭ
sadočok from sad+ŭk+ĭk+ŭ
den'očok from dĭnĭ+ŭk+ĭk+ŭ
babočka from bab+ŭk+ĭk+a
babon'ka from bab+ŭnĭ+ĭk+a

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[13] A late observation was made that sub-rule (d) above is unnecessary, i.e. the same results would be obtained by positing ŭk after the SE as by positing ĭk, in which case our lexical substitution rules could be simplified even further to read as follows:

$$\text{Diminutive} \rightarrow \begin{bmatrix} V \\ +\text{diff} \\ -T \end{bmatrix} \text{k} \qquad \text{SE} \rightarrow \begin{bmatrix} V \\ +\text{diff} \\ -T \end{bmatrix} \text{nĭ}$$

The feature of gravity may be predicted by the following lexical redundancy rule:

$$\begin{bmatrix} V \\ +\text{diff} \\ -T \end{bmatrix} \rightarrow \left\{ \begin{array}{l} [-\text{grv}] \text{ / in (a), (b) and (c) above} \\ [+\text{grv}] \text{ / elsewhere} \end{array} \right\}$$

Summary of the Phonological Rules of Analysis VI

(k:č) (=3-1a) $\begin{bmatrix}+\text{obst}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{strid}\\-\text{grv}\end{bmatrix} \;/\; \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$

(ĭ:j) $\breve{\text{i}} \rightarrow \text{j} \;/\; \_\_ \text{V}$

(e̲,o̲:i̲)(=3-2) $\begin{bmatrix}\text{V}\\-\text{T}\\+\text{comp}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{grv}\\+\text{diff}\\-\text{flat}\end{bmatrix} \;/\; \_\_ \text{C}_1 \begin{bmatrix}\text{V}\\-\text{T}\\+\text{diff}\end{bmatrix}$

(C:C') $\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{sharp}\end{bmatrix} \;/\; \_\_ \begin{bmatrix}-\text{cons}\\-\text{grv}\end{bmatrix}$

(lower) (=3-4) $\begin{bmatrix}\text{V}\\-\text{T}\\+\text{diff}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{diff}\end{bmatrix} / \_\_ \text{C}_1 \begin{bmatrix}\text{V}\\-\text{T}\\+\text{diff}\end{bmatrix}$

(del.) (=3-5) $\begin{bmatrix}\text{V}\\-\text{T}\\+\text{diff}\end{bmatrix} \rightarrow \emptyset$

(e̲:o̲) (=6-1) $\text{e̲} \rightarrow \text{o̲} \;/\; \begin{bmatrix}+\text{comp}\end{bmatrix} \_\_ \begin{bmatrix}-\text{sharp}\end{bmatrix}$

(j:∅) $\text{j} \rightarrow \emptyset \;/\; \text{C} \_\_$

(desh) (=3-6) $\begin{bmatrix}+\text{cons}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{sharp}\end{bmatrix} \;/\; \_\_ \begin{bmatrix}\text{V}\\-\text{diff}\\-\text{grv}\end{bmatrix}$

(desh-š) $\begin{bmatrix}+\text{obst}\\+\text{comp}\\-\text{grv}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{sharp}\end{bmatrix}$

Sample Derivations for Analysis VI

	sadok	riž̌ok	hiroč̌ka
	sad+ŭk+ŭ	roh+ĭk+ŭ	hor+ŭk+ĭk+a
(k:č̌)(=3-1a)	———	rož̌+ĭk+ŭ	hor+ŭč̌+ĭk+a
(o:i)	———	riž+ĭk+ŭ	hir+ŭč̌+ĭk+a
(C:C')(=3-3a)	———	r'iž'+ĭk+ŭ	h'ir+ŭč̌'+ĭk+a
(lower)	sad+ok+ŭ	r'iž'+ek+ŭ	h'ir+oč̌'+ĭk+a
(del.)	sad+ok	r'iž'+ek	h'ir+oč̌'+k+a
(e:o)(=6-1)	———	r'iž'+ok	———
(desh-š̌)	———	r'iž+ok	h'ir+oč̌+k+a

	mišeč̌ok	babon'ok	videreč̌ko
	mix+ĭk+ĭk+ŭ	bab+ŭnĭ+ĭk+ŭ	vidĭr+ĭk+ĭk+o
(k:č̌)	miš+ĭč̌+ĭk+ŭ	———	vidĭr+ĭč̌+ĭk+o
(ĭ:j)	———	bab+ŭnj+ĭk+ŭ	———
(C:C')	m'iš'+ĭč̌'+ĭk+ŭ	bab+ŭn'j+ĭk+ŭ	v'id'ĭr'+ič̌'+ĭk+o
(lower)	m'iš'+eč̌'+ek+ŭ	bab+on'j+ek+ŭ	v'id'er'+eč̌'+ĭk+o
(del.)	m'iš'+eč̌'+ek	bab+on'j+ek	v'id'er'+eč̌'+k+o
(e:o)	m'iš'+eč̌'+ok	bab+on'j+ok	———
(j:Ø)	———	bab+on'+ok	———
(desh)	m'iš+eč̌'+ok	———	v'ider+eč̌'+k+o
(desh-š̌)	m'iš+eč̌+ok	———	v'ider+eč̌+ko

	ručen'ka	doneč̌ok	den'oč̌ok
	ruk+ĭnĭ+ĭk+a	donĭ+ĭk+ĭk+ŭ	dĭnĭ+ŭk+ĭk+ŭ
(k:č̌)	ruč̌+ĭnĭ+ĭk+a	donĭ+ĭč̌+ĭk+ŭ	dĭnĭ+ŭč̌+ĭk+ŭ
(ĭ:j)	ruč̌+ĭnj+ĭk+a	donj+ĭč̌+ĭk+ŭ	dĭnj+ŭč̌+ĭk+ŭ
(C:C')	ruč̌'+ĭn'j+ĭk+a	don'j+ič̌'+ĭk+ŭ	d'ĭn'j+ŭč̌'+ĭk+ŭ
(lower)	ruč̌'+en'j+ĭk+a	don'j+eč̌'+ek+ŭ	d'en'j+oč̌'+ek+ŭ
(del.)	ruč̌'+en'j+k+a	don'j+eč̌'+ek	d'en'j+oč̌'+ek
(e:o)(=6-1)	———	don'j+eč̌'+ok	d'en'j+oč̌'+ok
(j:Ø)	ruč̌'+en'+k+a	don'+eč̌'+ok	d'en'+oč̌'+ok
(desh)	ruč̌+en'+ka	don+eč̌'+ok	den'+oč̌'+ok
(desh-š̌)	ruč̌+en'+k+a	don+eč+ok	den'+oč̌+ok

Conclusions

In conclusion, we might summarize the observations which we have made with respect to the various analyses presented in the course of this thesis and recapitulate a number of the reasons we have given for regarding Analysis VI as the most preferable. Our first description, the taxonomic solution, required a very complex lexicon, as it entailed the listing of all of the various forms of morphemes. Nevertheless, this particular analysis did seem to provide some insight into the exceptional behavior of certain roots ending in j. To reiterate, we found that in the formation of compound diminutives in general, there was a tendency for masculine roots whose final consonants were palatal obstruents to take /-ečok/ (as in /mišečok/) and to take /-očok/ otherwise (cf. /sadočok/, etc.), whereas no such general statement could be made for masculine roots which end in j (cf. /hajočok/ and /kraječok/). This indeterminacy appeared to be attributable to an overlapping of environmental conditions, i.e., it stemmed from the fact that such roots are both masculine and also end in a palatal (j). It is significant, we feel, that only a taxonomic analysis will provide any semblance of an explanation for the exceptional behavior of these forms, for root final palatal obstruents

appear only at a level of representation which is not far removed from the phonetic facts. In subsequent analyses, the environmental specification "after a palatal obstruent"is changed to read "after a velar," and we can see that such a reformulation would tend to obscure the relationship between the two categories, and, as a result, obscure this possible explanation for the confusion. Furthermore, a taxonomic solution of this sort could also be extended to account very neatly for the fact that some speakers consistently use **/mišočok/ and **/r'ižočok/ (i.e. /-očok/ with all masculine roots) but /ručečka/ and /r'ičečka/ (i.e. /-ečka/ with all feminine roots), which would suggest that in their particular dialect, all masculine compound diminutive substantives contain the /-oč/ variant after their roots, including those roots which end in palatal obstruents.

In Analysis II we arrived at a single morpho-phonemic representation for the diminutive suffix and thus simplified our lexicon considerably. However, we found that in order to account for the phonetic facts from this particular basic form, we required a very complex set of ad hoc rules. In Analyses III and IV we attempted to overcome these difficulties, without sacrificing our lexical simplicity,

by resorting to more abstract basic representations; yet, we still found that we had to posit a number of complex ad hoc rules of very limited application, and even then were unable to account for the correct results in some instances. In Analysis V, we found that many of the earlier difficulties could be eliminated by reintroducing a measure of complication into the lexicon; but,we still found it necessary to choose between two ad hoc methods of accounting for the sequences -čok and -n'ok in word-final position. In Analysis VI, however, we finally managed to come up with a set of lexical representations for both the diminutive (ŭk~ĭk) and endearment (ŭnĭ ~ ĭnĭ) suffixes on the basis of which we were able to predict all phonological alternations purely on phonological grounds and account for all of the essential data by utilizing rules whose application was not restricted to the derivation of diminutives, but which could be incorporated in a more complete grammar of Ukrainian.

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APPENDIX

Gr. 1 Simple Diminutives

(a)	sadok	'small orchard'	(cf. sad)	'orchard'
	synok	'small son'	(cf. syn)	'son'
	mlynok	'little (hand) mill'	(cf. mlyn)	'mill'
	vizok	'little wagon'	(cf. voza-gen. sing.)	'wagon'
	mistok	'small bridge	(cf. mosta-gen. sing.)	'bridge'
	hajok	'small grove'	(cf. haj, haju)	'grove'
	den'ok	'day (dim.)'	(cf. den', dn'a)	'day'
	pen'ok	'little stump'	(cf. pen', pn'a)	'stump'
	xmarka	(g. pl. xmarok) 'little cloud '		
	kiska	(g. pl. kisok) 'tress of hair	(cf. kosa)	'braid'
	hirka	(g. pl. hirok) 'hillock '	(cf. hora)	'mountain'
	don'ka	(g. pl. don'ok) 'little daughter'	(cf. don'a)	'daughter'
	bul'ka	(g. pl. bul'ok) 'tiny bubble '	(cf. bul'a)	
	l'al'ka	(g. pl. l'al'ok) 'little doll '	(cf. l'al'a)	'doll'

Velar Stems

(b)	mišok	'bag, sack'	(cf. mix)	'bag'
	ručka	(g. pl. ručok) 'woman's dainty hand '	(cf. ruka)	'hand'
	knyžka	(g. pl. knyžok) 'book '	(cf. knyha)	'book, volume'
	rička	(g. pl. ričok) 'stream '	(cf. rika)	'river'
	muška	(g. pl. mušok) 'little fly'	(cf. muxa)	'fly'

Gr. 2 Compound Diminutives (Masc. and fem. hard stem nouns)

sadočok	'little orchard'	(cf. sad and sadok)
mlynočok	'little (hand) mill'	(cf. mlyn and mlynok)
mistočok	'little bridge'	(cf. mist and mistok)
xmaročka	(g. pl. xmaročok)	'little cloud' (cf. xmara, xmarka)
kisočka	(g. pl. kisočok)	'tresses' (cf. kosa and kiska)
babočka	(g. pl. babočok)	'granny' (cf. baba and babka)

Gr. 3 Compound Diminutives of Velar Stems

mišečok	'little sack'	(cf. mix and mišok)
ručečka	(g. pl. ručečok)	'dainty little hand' (cf. ruka, ručka)
knyžečka	(g. pl. knyžečok)	'pamphlet, booklet' (cf. knyha, knyžka)
ričečka	(g. pl. ričečok)	'little brook' (cf. rika and rička)
nižečka	(g. pl. nižečok)	'little foot' (cf. noha and nižka)
mušečka	(g. pl. mušečok)	'little fly' (cf. muxa and muška)

Gr. 4 Compound Diminutives of Neuter Stems

kryleček	(g. pl. -ček)	'little wing'	(cf. krylo) 'wing'
vikonečko	(g. pl. -ček)	'little window	(cf. vikno) 'window'
viderečko	(g. pl. -ček)	'little pail'	(cf. vidro) 'pail'
mistečko	(g. pl. -ček)	'little village'	(cf. misto) 'city, town'
kriselečko	(g. pl. -ček)	'little chair'	(cf. krislo) 'chair'
sonečko	(g. pl. -ček)	'sun' (end.)	(cf. sonce) 'sun'

Gr. 5 Compound Diminutives of Soft Stem Feminine Nouns

donečka	(g. pl. -ček)	'little daughter'	(cf. don'a, don'ka)
l'uleček	(g. pl. -ček)	'little pipe'	(cf. l'ul'ka)
buleček	(g. pl. -ček)	'tiny bubble'	(cf. bul'ka)
l'aleček	(g. pl. -ček)	'little doll'	(cf. l'al'ka and l'al'a)
baječek	(g. pl. -ček)	'fairy tale'	(cf. bajka) 'fable'

Gr. 6 Compound Diminutives of Soft Stem Masculine Nouns

den'ček	'day'	(cf. den' and den'ok)
pen'ček	'little stump'	(cf. pen' and pen'ok)
rajček	'paradise'	(cf. raj and rajok)
hajček	'little grove'	(cf. haj and hajok)

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